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SIXTH
ANNUAL
REPORT

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MASSACHUSETTS BAY TRANSPORTATION AUTHORITY



**MASSACHUSETTS
BAY
TRANSPORTATION
AUTHORITY**

500 Arborway, Boston, Mass. 02130

SIXTH ANNUAL REPORT

MASSACHUSETTS BAY

TRANSPORTATION AUTHORITY

TO:

His Excellency the Governor,

The General Court, and

The Advisory Board of the Massachusetts

Bay Transportation Authority

In accordance with the requirements of Section 5 (h) of Chapter 161A of the General Laws, as modified by Chapter 650 of the Acts of 1965, the Directors of the Massachusetts Bay Transportation Authority herewith render the sixth report of the Authority which covers the results of operations for the fiscal period December 1, 1969, through December 31, 1970.

SUMMARY OF THE NET COST OF SERVICE FROM
DECEMBER 1, 1969, THROUGH DECEMBER 31, 1970

Total income for the period was \$66,798,085.49. Total expenses for the period were \$132,984,195.37. This total includes various fixed charges and the sum of \$90,701,939.73 for wages and fringe benefits.

The difference between total income and total expenses is \$66,186,109.88 and represents the cost of service in excess of income for the thirteen month fiscal period.

This figure, less state financial contract assistance of \$13,977,685.77, fuel tax reimbursement of \$367,647.02, reimbursement from outside communities of \$181,232.00 and an unreimbursed deficit relating to depreciation in the amount

of \$449,875.00, brings the net assessable cost of service for the 79 communities of the Authority district to \$51,209,670.09.

In addition to the net cost of service, there are three other items which must be considered by the 79 cities and towns in their 1971 account settlement with the Commonwealth of Massachusetts. These are illustrated by the following table:

Net Cost of Service	\$51,209,670.09
Interest Charged by State Treasurer on Temporary Borrowings (Estimated)	\$ 1,450,000.00
Expenses of Boston Metropolitan District	<u>\$ 16,000.00</u>
TOTAL	\$52,675,670.09
Less Pupils' Reimbursement Chapter 71, Section 7B (Estimated)	<u>\$ 1,031,000.00</u>
NET COST TO COMMUNITIES	\$51,644,670.09

The Net Cost of Service to the Communities reflects the reality that public transportation services are essential to the economic health of the metropolitan area, and should no more be expected to return a "profit" than other essential services such as police, fire, and public works. Urban transportation systems worldwide operate under financial subsidization, based on the fact that these basic functions provide important economic and social benefit to urban communities. The cost of service is a public investment, like so many others, in the economic vitality of the region.

The following table illustrates the Authority's net cost of service including all elements of cost for the fiscal operation and the apportionment of these costs by express and local service according to the formulae contained in the legislation establishing the Authority.

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

STATEMENT OF NET COST OF SERVICE - LOSS - BY EXPRESS AND LOCAL

FISCAL PERIOD DECEMBER 1, 1969 TO DECEMBER 31, 1970

	<u>Express Service</u>	<u>Local Service</u>	<u>Total</u>
Income:			
Revenue from Transportation	\$30,258,216.91	\$30,419,474.10	\$60,677,691.01
Revenue from Other Rwy. Operations	700,775.21	239,910.82	940,686.03
Non-Operating Income	<u>3,270,473.05</u>	<u>1,909,235.40</u>	<u>5,179,708.45</u>
TOTAL INCOME	34,229,465.17	32,568,620.32	66,798,085.49
Operating Wages and Fringe Benefits:			
Wages	31,224,593.89	42,532,013.13	73,756,607.02
M.B.T.A. Pensions	3,847,288.14	5,099,893.58	8,947,181.72
Social Security Taxes	1,024,048.85	1,357,460.11	2,381,508.96
Workmen's Compensation	375,162.30	501,856.93	877,019.23
Accident and Sickness Insurance	198,627.49	263,296.90	461,924.39
Group Life Insurance	291,461.36	386,355.75	677,817.11
Blue Cross-Blue Shield	1,446,705.42	1,917,725.80	3,364,431.22
Unemployment Insurance	9,069.56	12,022.44	21,092.00
Uniform and Work Clothes	<u>83,060.99</u>	<u>131,297.09</u>	<u>214,358.08</u>
TOTAL OPERATING WAGES AND FRINGE BENEFITS	38,500,018.00	52,201,921.73	90,701,939.73
Material and Other Items	3,972,812.55	5,053,704.00	9,026,516.55
Injuries and Damages	466,215.09	1,791,659.61	2,257,874.70
Depreciation	(214,130.00)	664,005.00	449,875.00
Interest on Unfunded Debt	870,748.85	2,478,285.20	3,349,034.05
Fuel	1,384,334.06	1,291,770.98	2,676,105.04
Taxes (Other than included above)	65,792.78	601,576.97	667,369.75
Railroad Commuter Subsidy	5,970,512.76	-	5,970,512.76
Middlesex & Boston Subsidy	-	964,368.80	964,368.80
Rapid Transit Inc. Subsidy	<u>-</u>	<u>120,872.97</u>	<u>120,872.97</u>
TOTAL OPERATING EXPENSES AND TAXES	51,016,304.09	65,168,165.26	116,184,469.35
Fixed Charges:			
Interest on Funded Debt (M.T.A.)	2,960,889.59	1,095,123.55	4,056,013.14
Interest on Funded Debt (M.B.T.A.)	4,748,206.10	358,161.49	5,106,367.59
Payment on Funded Debt (M.T.A.)	2,283,580.07	1,722,700.80	4,006,280.87
Payment on Funded Debt (M.B.T.A.)	2,979,166.66	480,072.12	3,459,238.78
Cambridge Subway Rental	150,952.60	-	150,952.60
Miscellaneous Debits	9,924.23	3,670.60	13,594.83
Bank Service Charges (M.B.T.A.)	<u>6,695.96</u>	<u>582.25</u>	<u>7,278.21</u>
TOTAL FIXED CHARGES	13,139,415.21	3,660,310.81	16,799,726.02
TOTAL CURRENT EXPENSES	64,155,719.30	68,828,476.07	132,984,195.37
COST OF SERVICE IN EXCESS OF INCOME	29,926,254.13	36,259,855.75	66,186,109.88
Less:			
State Fin. Contract Assist. - M.T.A.	3,250,000.00	-	3,250,000.00
State Fin. Contract Assist. - M.B.T.A.	5,170,516.50	416,170.13	5,586,686.63
Gas & Diesel Taxes Reimbursable	-	367,647.02	367,647.02
State Financial Contract Assistance on Railroad Subsidy	5,140,999.14	-	5,140,999.14
Reimbursement from Outside Communities	<u>-</u>	<u>181,232.00</u>	<u>181,232.00</u>
TOTAL CONTRACT ASSISTANCE AND ADJUSTMENTS	13,561,515.64	965,049.15	14,526,564.79
NET COST OF SERVICE - LOSS	16,364,738.49	35,294,806.60	51,659,545.09
LESS - UNREIMBURSED DEFICIT	<u>(214,130.00)</u>	<u>664,005.00</u>	<u>449,875.00</u>
NET ASSESSABLE COST OF SERVICE	\$16,578,868.49	\$34,630,801.60	\$51,209,670.09

1970 STATISTICS

Population of 79 Communities in M.B.T.A.	
District (Latest U.S. Census, 1970).....	2,763,410
Trackless Trolleys.....	58
Streetcars.....	343
Rapid Transit Cars.....	356
Buses.....	1,226
Number of Rapid Transit Routes.....	3
Number of Trackless Trolley Routes.....	4
Number of Streetcar Routes.....	5
Number of Bus Routes.....	201
Rapid Transit Stations.....	48
Single Track Rapid Transit Train Mileage.....	64.3
Single Track Streetcar Mileage.....	86.7
Weekly Vehicle Trips Operated.....	81,786
Weekly Vehicle Miles Operated.....	875,517
Proposed Rapid Transit Extensions (miles).....	29.0
Daily Passenger Load (approx.).....	575,000
Annual Passenger Load (approx.).....	186,000,000
Employees (Dec., 1970).....	6,579
Bargaining Units.....	27
Boston Elevated Railway Company (Chartered)...	1894
Public Control Act (By Legislation).....	1918
Metropolitan Transit Authority - MTA	
(By Legislation).....	1947
Massachusetts Bay Transportation Authority -	
M.B.T.A. (By Legislation).....	1964

Accomplishments of 1970

The fiscal year 1970 saw substantial improvements to the physical condition of the MBTA plant and significant new directions in the operation of services to member cities and towns.

- . A total of 186,000,000 revenue passengers were served during the year. The Authority carried over 60% of the region's school trips, with special school bus service transporting over 1,870,000 children. Ridership on the Turnpike Express Bus service rose by 56%, with 1,920,900 revenue passengers carried in 1970. Express bus service was inaugurated between Burlington and Downtown Boston. Direct bus service from the North Shore to Downtown was improved to coincide with ridership growth, which has increased by sixty percent in two years. Experimental local bus services were instituted in many communities, including a new airport bus to the North Shore.
- . During the fiscal year, contracts totaling nearly nine million dollars were awarded for the South Shore Line. These contracts were for construction of the Quincy Center Station and parking garage, North Quincy Station and site development, as well as investments in drainage, power, and communications. Although the project was scheduled to open in 1970, a major concrete strike and the bankruptcy of the rail contractor have forced the delay of the opening until summer of 1971.
- . During the fiscal year, the Haymarket-North Project saw the completion of the tunnel from Haymarket Station to Charlestown. The Orange Line North Station, with its dramatic suspended mezzanine and skylighting, was inspected on several occasions by local officials and visiting dignitaries. Over six million dollars worth of additional construction contracts were let, for a complex railroad underpass in Medford, and for trackwork from Haymarket Station to Sullivan Square. Opening of the Haymarket-North Project is now expected in 1974.
- . The present phase of the South Cove Tunnel construction is virtually complete, including the structural work on the new South Cove Station. The new tunnel will connect with the Southwest rapid transit extension.

CIVILITE TUNNEL
HAYMARKET I. →
NORTH PROJ
ORANGE LINE
NORTH STATION
NEW SOUTH COVE
STATION

7
→
STA
MODERNIZED

- Major modernization work was completed at seven stations: Copley, Kenmore, Prudential, Fields Corner, Columbia, Maverick, and Orient Heights and a new station entrance was opened from the Washington Station on the Orange Line to Franklin Street. Construction continues at Haymarket Station on the Green Line and at State and Essex Stations on the Orange Line where new entrances and escalators are being installed as part of city renewal projects.
- The Minor Modernization Program, which will improve the graphic information system in all stations unaffected by the station modernization program, was in early stages of implementation. Lighting and graphics were improved in the Park Street Station, a forerunner of several system-wide environmental improvements to be made during 1971.
- A highly successful, innovative design competition was conducted for the wall graphics at Kenmore Station. Three students from local art schools won U. S. Savings Bonds and today have their artistic work displayed on the murals of the new Kenmore Station. The brightly lit station is one of the most colorful and imaginative accomplishments of the Station Modernization Program.
- The Authority initiated a design competition through the Institute of Contemporary Art for the creation of a wall mural at the State Station walkway. This innovative program has received financial support from the Rockefeller Foundation.
- In the planning sphere, 1970 brought several major activities. The Central Area Systems Study was completed, and its principal recommendations were immediately incorporated into the Authority's \$250 million Funds for Transit Program. This exhaustive engineering study has resulted in a high priority being placed on the creation of a modern light rail network being created as a permanent solution to the serious problems of Green Line service.
- Important interagency planning efforts were maintained. Participation in continuous transportation work has assured full coordination with the many agencies responsible for the region's transportation. The Authority actively participated in the design of the Boston Transportation Planning Review. The Authority's participation,

ESIA
competition

planning
program

ordered by Governor Francis W. Sargent, has ensured that important planning and engineering will proceed simultaneously with the study, with transit decisions timed to bring about the earliest possible improvements in the public transportation system. The Authority's activity in this process is geared to produce maximum coordination with the new state Department of Transportation and Construction.

- . The MBTA inherited a debt of \$145 million from the Metropolitan Transit Authority, which will not be retired until the year 2024. The annual cost of this debt was \$3,698,259 for 1970. This figure is included in the net cost of service. The Authority has issued \$176,865,000 in bonds, of which \$66,865,000 was floated in 1970. These bonds will be retired over a 40-year period, and will be used for construction of the South Shore and Haymarket-North rapid transit extensions; to modernize existing stations; for the purchase of new buses; and to purchase the original Cambridge subway, built between 1909 and 1912, from the Commonwealth of Massachusetts as directed by Chapter 513 of the Acts of 1970.

EXACT FARE
SYST. ←

- . Toward the close of 1970 the Authority began a program to implement an exact fare system on all surface lines.
- . During 1970, the Authority developed a program to combat air pollution. Low sulphur fuels are now burned in the Authority's power plants. New fuel injection systems are being installed in all buses capable of modification. All new buses will be purchased with catalytic mufflers, to comply with new Federal regulations.

Pollution
Control

Comprehensive Program for Mass Transportation

During the 1970 fiscal period, one revision was made to the Master Plan. On December 19, 1969, the Advisory Board to the Authority unanimously approved the purchase by the Authority of approximately 24 acres of land in the Penn Central Railroad's Dover Street Yards in the South Bay, Boston. The approval permitted the Authority to proceed with applications to the Federal government for assistance in funding the construction of yards and shops for the Cambridge-Dorchester and South Shore rapid transit lines and a major bus garage to serve the central portion of the Authority's district.

In the 1970 fiscal period, grant applications totalling \$42,246,657.00 were submitted to the federal government. These applications included the financing of the South Bay Maintenance Center which will house the Cambridge-Dorchester and South Shore rapid transit yards and shops and a major consolidation bus garage facility. Grant applications were also filed for supplementary funds to construct the South Quincy-North Braintree Station on the South Shore Line, to build the Ivory Street access road to the South Braintree Station on the same line, to install electronic fare collection equipment on the South Shore line and to handle the costs of escalation and changes in the scope of that project.

A Managerial Training Grant from the Federal government assisted the Authority in providing fellowships for the training of MBTA personnel. This grant, requiring no local monies, amounted to \$15,031.00, and resulted in limited-duration study for seven middle-management employees.

The MBTA became the focus of a \$346,000 study grant to identify job applicants trainable as transit equipment operators. When completed, all transit agencies will have improved means of seeking and retaining reliable, service-oriented personnel chosen on a non-discriminatory basis.

REVISION
TO MASTER
PLAN.

Capital Program Development

In the last months of 1970, Congress passed the Urban Mass Transportation Assistance Act into law, providing \$3.1 billion for mass transportation assistance grants. Massachusetts' share will amount to over \$400 million, subject to sharing agreements provided locally. For the Authority, this funding agreement meant that several important projects, stalled for lack of financing, could, with legislative assistance, get underway again. Based on available federal funding, the Authority submitted a new proposal for bonding authorization to the General Court of Massachusetts. This request for \$250 million bonding authorization would provide local sharing to be matched against the available federal monies-- a total of nearly \$700 million in construction activity to improve the mass transportation system for the Greater Boston area.

The proposal has been specifically prepared to help ameliorate the condition of the present dilapidated plant and equipment facilities, including a substantially improved trolley car fleet, an investment in new and improved roadbeds, new maintenance garages, a major infusion of new buses and a replacement of the 1923 cars on the East Boston line.

In addition, the Authority has recommended expanding the system by adding a modern rapid transit facility in the Southwest Corridor from downtown to West Roxbury, an extension of the Cambridge-Dorchester system from Harvard Square to Route 2 and Alewife Brook Parkway, an extension of the East Boston line to Pines River in Revere and an extension of the South Shore line to Weymouth or Holbrook.

With respect to commuter railroad service, funds were requested as a reserve for improvements to stations and parking lots if the Legislature elects to retain any commuter lines. Alternatively, if commuter railroad service is discontinued, such a reserve should be used for the purchase of selected rights-of-way to assure their preservation as corridors within which people can be moved.

If bonding authorization is passed by the Legislature in 1971, the program will effect both long- and short-term improvements. Operating economies will be instituted by, for example, alleviating the expense involved in maintaining a fleet of trolley cars whose average age of over 25 years and whose repair facilities are largely pre-turn of the century. By providing more modern and comfortable facilities, the Authority believes that the downward spiral in ridership can be halted. By undertaking these projects, including the extensions, the Greater Boston area will have a complete mass transportation system capable of meeting the needs of the area residents.

1. AUTH
REQUESTS
TO DO

MAINTENANCE OF USE

Recommendations for Legislation

1970
REC'D
AUTH
LEGISL
REC'D

In the 1970 legislative session, the Authority made three major recommendations for transportation funding. Two of these were enacted into law, while the third was rejected. The legislature authorized the Executive Office for Administration and Finance to make further grants to the Authority for the purpose of providing for the continuation of commuter railroad service to and from the City of Boston until July 31, 1971. In addition, the legislature voted to authorize the Authority to refund certain bonds of the Commonwealth issued for the purchase and improvement of the Cambridge subway and provide for state aid of bond anticipation notes of the Authority.

However, the legislature did not approve the most important bill filed by the Authority. The Request for Added Funds was denied, causing the delay of several important projects in the Authority's capital expansion program. This year the Federal government passed the Urban Mass Transportation Assistance Act of 1970, which provides for two federal dollars of assistance for every one dollar of local share. It is known that the inter-regional competition for these funds will increase year by year, and any delay in obtaining local matching funds impairs the Authority's ability to obtain maximum federal assistance. A significantly revised request for increased bonding authorization has been filed for the 1971 legislative session. The continuance of the Authority's Program for Mass Transportation depends upon the passage of this critical legislation.

The 1970 legislative session saw the enactment of two bills filed by the Authority. The legislature further extended the time within which the Metropolitan District Commission is authorized to convey a certain parcel of land located in Cambridge, Arlington, and Belmont to the Authority. Likewise, a bill providing that no bonds be required for the removal of certain actions from district courts by political subdivisions was enacted.

Several other bills were presented to the legislature. Proposals were made to strengthen laws concerning malicious destruction, the throwing of missiles, pickpocketing, disorderly conduct, and smoking on public conveyances and certain transportation facilities. Other bills sought arbitration on negotiations between labor organizations and the Authority, in service training for Authority police officers, and alteration of the law requiring guards on rapid transit trains. Additional legislation concerned restrictions on the length of buses, standardization of relocation expense payments in eminent domain, air rights authorization, the selling of power plants, concessions and the leasing of property.

In addition to the Funds for Transit request for increased bonding authorization, the Authority has filed bills in the 1971 session to provide state aid on bond authorization notes not covered by existing legislation, and to provide for the continuation of essential commuter railroad service until August 1, 1976. Other bills seek the repeal of Chapter 628, prohibiting the Authority from disposing of or selling its power plants. Alternatively, legislation has been filed to authorize additional bonds for power generating plants and substations. Certain bills have been refiled concerning training for Authority police officers, changes in certain powers of the Authority, and entrance on private land for purposes of surveys, soundings and drillings.

FINANCIAL STATEMENTS

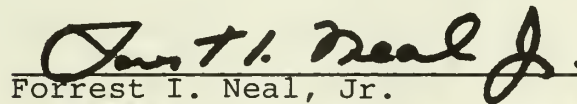
The balance sheet and statement of long-term debt of the Massachusetts Bay Transportation Authority as of December 31, 1970, and the related statements of revenue and cost of service, unreimbursed cost of service, and source and disposition of funds for the thirteen month period ended December 31, 1970, together with notes relating to these financial statements are appended to this report.

Respectfully submitted,

Board of Directors

Massachusetts Bay Transportation Authority


Henry S. Lodge, Chairman


Forrest I. Neal, Jr.


Richard D. Buck


Francis B. Gummere


John J. McCarthy

March 31, 1971

ARTHUR ANDERSEN & CO.
BOSTON, MASSACHUSETTS

To the Board of Directors of

Massachusetts Bay Transportation Authority:

We have examined the balance sheet and statement of long-term debt of MASSACHUSETTS BAY TRANSPORTATION AUTHORITY (a political subdivision of the Commonwealth of Massachusetts) as of December 31, 1970, and the related statements of revenue and cost of service, unreimbursed cost of service, and source and disposition of funds for the thirteen month period ended December 31, 1970. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

In our opinion, the accompanying financial statements present fairly the financial position of the Massachusetts Bay Transportation Authority as of December 31, 1970, and the results of its operations and the source and disposition of funds for the thirteen month period ended December 31, 1970, in conformity with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

Arthur Andersen & Co.

Boston, Massachusetts,

March 18, 1971.

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

BALANCE SHEET - DECEMBER 31, 1970

A S S E T S

TRANSPORTATION PROPERTY, at cost:
 Transportation property in service \$236,929,378
 Construction in progress (Note 10) 127,921,507

 \$364,850,885
97,327,174 \$267,513,711

Less- Reserve for depreciation (Note 7) (9,641,163)

SPECIAL FUNDS - Cash, Certificates of Deposit and U. S. Government Securities, at cost:
 Construction funds, held by the bond fiscal agent \$ 53,449,839
 Funds received for relocation of facilities (Note 3) 916,512
 Federal grants (Note 8) 1,128
778,741 55,146,220
 Other special funds

CURRENT ASSETS:
 Cash \$ 2,723,464
 Certificates of Deposit and U. S. Government Securities, at cost 65,098,877
 Accounts receivable- Commonwealth of Massachusetts 6,208,598
 Boston Redevelopment Authority (Note 8) 3,624,657
 Other 2,292,896
 Materials and supplies, at average cost 3,014,473
215,041 83,178,006
 Prepaid expenses

DEFERRED CHARGES:
 Unamortized expansion and modernization costs (Note 1) \$ 9,861,897
 Other 921,306 10,783,203

 \$416,621,140
 =====

LIABILITIES
 LONG-TERM DEBT, exclusive of current maturities, see accompanying statement (Note 9) \$282,937,114
 UNREIMBURSED COST OF SERVICE (Note 7)
 CURRENT LIABILITIES:
 Current maturities of long-term debt \$ 8,776,259
 Notes payable 60,000,000
 Accounts payable 10,581,068
 Payroll 1,100,772
 Interest 3,230,333
 Other 2,172,474
181,892 86,042,801
 Unredeemed tickets and tokens

COMMITMENTS AND CONTINGENCIES (Notes 4, 5, 6 and 10)
 DEFERRED CREDITS (Note 3) 6,967,711
 GRANTS - UNAMORTIZED PORTION (Note 8):
 Federal grants \$44,059,519
 Boston Redevelopment Authority 6,255,158 50,314,677

 \$416,621,140
 =====

The accompanying notes are an integral part of these financial statements.

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

STATEMENT OF REVENUE AND COST OF SERVICE

FOR THE THIRTEEN MONTH PERIOD ENDED DECEMBER 31, 1970

OPERATING REVENUE:

Transportation	\$ 60,677,691
Other	940,686

	\$ 61,618,377

OPERATING EXPENSES (Note 11):

Transportation service	\$ 53,404,353
Maintenance	24,234,261
Electric power	4,292,278
Depreciation (Note 7)	8,341,520
General and administrative expenses -	
Salaries and wages	6,168,259
Employee pension and insurance	
benefits (Note 4)	13,451,354
Injuries and damages and workmen's	
compensation claims (Notes 5 and 6)	3,135,005
Other	1,901,363

	\$114,928,393

Operating loss	\$ (53,310,016)
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OTHER INCOME, including interest of \$4,918,767	5,179,708
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INTEREST EXPENSE, including \$9,162,381 on long-term debt	(12,511,415)
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RAILROAD COMMUTER SUBSIDIES, including amortization of the original Railroad Contract Assistance Program of \$352,083 (Notes 1 and 2)	(1,181,597)

Cost of service in excess of revenue	\$ (61,823,320)
	=====

The accompanying notes are an integral
part of these financial statements.

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

STATEMENT OF UNREIMBURSED COST OF SERVICE

FOR THE THIRTEEN MONTH PERIOD ENDED DECEMBER 31, 1970

BALANCE NOVEMBER 30, 1969	\$ 9,007,443
ADD- Cost of service in excess of revenue for the thirteen month period ended December 31, 1970	61,823,320
DEDUCT:	
Cost of service reimbursed by the Commonwealth of Massachusetts to be assessed to the cities and towns constituting the Authority	(51,209,670)
Contract Assistance, portion of the cost of service paid by the Commonwealth of Massachusetts in accordance with a contract for financial assistance between the Authority and the Commonwealth, pursuant to Chapter 563 of the Acts of 1964 and Chapter 147 of the Acts of 1968	(8,836,687)
Cost of service reimbursed by the cities and towns outside the Authority's area	(181,232)
State diesel and gasoline fuel taxes reimbursable to the Authority in accordance with Section 2 of Chapter 563 of the Acts of 1964	(367,647)
Amortization of Federal grants (Note 8)	(594,364)

BALANCE DECEMBER 31, 1970 (Note 7)	\$ 9,641,163 =====

The accompanying notes are an integral
part of these financial statements.

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

STATEMENT OF SOURCE AND DISPOSITION OF FUNDS

FOR THE THIRTEEN MONTH PERIOD ENDED DECEMBER 31, 1970

CASH BALANCE - NOVEMBER 30, 1969	\$ 7,395,632
FUNDS WERE PROVIDED FROM:	
Commonwealth of Massachusetts-	
To be assessed to the cities and towns constituting the Massachusetts Bay Transportation Authority-	
Amount due on the 1969 deficit	\$ 3,169,442
Advance on the 1970 deficit	48,000,000
Contract assistance in accordance with Section 28 of Chapter 563 of the Acts of 1964	8,312,276
Contract assistance in accordance with Section 1 of Chapter 578 of the Acts of 1969 and Section 1 of Chapter 604 of the Acts of 1970	5,062,876
State diesel and gasoline fuel taxes reimbursable to the Authority in accordance with Section 2 of Chapter 563 of the Acts of 1964	348,191
Federal Grants	8,109,637
Proceeds from sale of 1970 Series A Bonds	66,865,000
Proceeds from short-term notes, net of payments	11,500,000
Other sources, net	4,612,347

	\$155,979,769

FUNDS WERE USED FOR:	
Cost of service in excess of revenue	\$61,823,320
Less-	
Depreciation and amortization charges to cost of service which did not require an expenditure of funds	(8,693,603) \$ 53,129,717
Payment of Railroad Commuter Subsidies- Commonwealth of Massachusetts portion	5,140,999
Purchase of Certificates of Deposits and U. S. Government Securities, net of sales	20,145,295
Payment of long-term debt	6,898,259
Expenditures related to the expansion and modernization of the transportation system	1,069,080
Additions to transportation property, net	67,357,749
Reduction in deferred credits	526,668
Additions to Special Fund accounts, net	6,384,170

	\$160,651,937

NET DECREASE IN CASH	(4,672,168)
CASH BALANCE - DECEMBER 31, 1970	\$ 2,723,464
	=====

The accompanying notes are an integral part of these financial statements.

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

STATEMENT OF LONG-TERM DEBT (Note 9)

DECEMBER 31, 1970

Massachusetts Bay Transportation Authority General Transportation System Bonds issued under General Laws, Chapter 161A, Section 23 of the Commonwealth of Massachusetts, 1967 Series A, dated March 1, 1967, and 1970 Series A, dated September 1, 1970, both payable in annual installments on March 1 -- interest is payable semiannually on March 1 and September 1.

1967 Series A Bonds - The proceeds of the sale of the 1967 Series A Bonds were required to be used for payment of \$40,000,000 of Bond Anticipation Notes outstanding and the balance of \$70,000,000 were required to be deposited in the Bond Proceeds accounts. These bonds were issued to provide funds for the purposes outlined below. The debt outstanding at December 31, 1970 is as follows:

<u>Purpose</u>	<u>First Principal Payment</u>	<u>Year of Maturity</u>	<u>Approximate Annual Payment</u>	<u>Average Interest Rate</u>	
Express service transportation facilities	1969	2007	\$1,900,000	3.79%	\$ 70,250,000
Agreement with railroads	1968	1982	325,000	3.75	4,025,000
Buses and other purposes	1968	1979	300,000	3.75	2,900,000
Local service transportation facilities	1969	2007	50,000	3.79	1,850,000
Capital cost of certain transportation facilities including yards, shops and rolling stock	1969	2007	625,000	3.79	23,950,000
					----- \$102,975,000 -----

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

STATEMENT OF LONG-TERM DEBT (Note 9)

DECEMBER 31, 1970

(Continued)

1970 Series A Bonds - The proceeds of the sale of the 1970 Series A Bonds were required to be used for payment of \$5,365,000 of Bond Anticipation Notes outstanding and the balance of \$61,500,000 were required to be deposited in the Bond Proceeds accounts. These bonds were issued to provide funds for the following purposes:

<u>Purpose</u>	<u>First Principal Payment</u>	<u>Year of Maturity</u>	<u>Approximate Annual Payment</u>	<u>Average Interest Rate</u>	
Express service transportation facilities	1971	2010	\$1,540,000	6.32%	\$ 61,500,000
Buses and other purposes	1971	1982	295,000	6.17	3,500,000
Purchase and improvement of the Cambridge subway	1971	1980	190,000	6.20	1,865,000

					\$ 66,865,000

Metropolitan Transit Authority Bond, payable in semiannual installments of \$500,000 to December, 2020 -- Interest payable is the interest payable by the Boston Metropolitan District on their contra debt and refunding issues, which for the thirteen month period ended December 31, 1970 was 3.12%					\$ 49,918,373

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

STATEMENT OF LONG-TERM DEBT (Note 9)

DECEMBER 31, 1970

(Continued)

Rapid Transit Bond, payable in annual installments of \$536,259 to November, 2024 -- interest is the actual interest on the City of Boston Transit Debt and refunding issues less income collected on the City's transit debt sinking funds, which for the thirteen month period ended December 31, 1970 was 3.53%

\$28,958,000

Equipment Serial Bonds:

<u>Year of</u>	<u>Approximate</u>	<u>Interest</u>		
<u>Maturity</u>	<u>Annual Payment</u>	<u>Rate</u>		
1971	\$ 84,000	1.50%	\$ 84,000	
	139,000	3.10	<u>139,000</u>	\$ 223,000
1973	45,000	2.50	\$ 135,000	
	90,000	3.50	<u>270,000</u>	405,000
1974	8,000	3.00		28,000
1975	122,000	3.00		598,000
1977	218,000	3.00		1,532,000
1978	206,000	3.00		1,436,000
1981	127,000	1.50		1,397,000
1987	127,000	2.90		2,167,000
1988	131,000	2.90		2,358,000
1993	169,000	3.00	\$3,887,000	
	100,000	3.20	<u>2,300,000</u>	6,187,000
	-----			-----
	\$1,566,000			\$16,331,000
	=====			-----

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

STATEMENT OF LONG-TERM DEBT (Note 9)

DECEMBER 31, 1970

(Continued)

Construction Bonds:

2.00%, payable \$102,000 per annum to November 21, 1979, and \$4,590,000 on November 25, 1979	\$ 5,508,000
1.50%, payable \$84,333 per annum to March 1, 1981, and \$3,781,667 on March 1, 1981	4,709,333
2.10%, payable \$22,000 per annum to January 15, 1982, and \$990,000 on January 15, 1982	1,254,000
2.75%, payable \$47,000 per annum to March 1, 1983, and \$2,115,000 on March 1, 1983	2,726,000
2.30%, payable \$10,000 per annum to March 1, 1984, and \$450,000 on March 1, 1984	590,000
3.00%, payable \$55,000 per annum to July 1, 1988, and \$2,475,000 on July 1, 1988	3,465,000
3.60%, payable \$69,667 per annum to February 1, 1989, and \$3,135,000 on February 1, 1989	4,458,667
3.50%, payable \$19,000 per annum to September 15, 1990, and \$855,000 on September 15, 1990	1,235,000
3.20%, payable \$40,000 per annum to April 15, 1993, and \$1,800,000 on April 15, 1993	2,720,000

	\$ 26,666,000

Less- Current maturities of long-term debt	\$291,713,373
	8,776,259

Long-term debt	\$282,937,114
	=====

The accompanying notes are an integral part of these financial statements.

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

NOTES TO FINANCIAL STATEMENTS

DECEMBER 31, 1970

(1) Unamortized Expansion and Modernization Costs

The Authority has deferred certain expenses related to the expansion and modernization of the transportation system. Such costs include the Authority's share, \$4,025,000, under the original Railroad Contract Assistance Program for the railroads which have temporarily continued passenger service until such time as permanent alternative facilities have been constructed by the Authority. These costs are being amortized by charges to the cost of service over 15 years which amounted to \$352,083 in 1970. In addition, there is included \$580,800 of costs not assigned to assets in connection with the acquisition of the Eastern Mass. Railway Company. These costs are being amortized by charges to cost of service over 40 years which amounted to \$16,600 in 1970.

The other deferred expenses relating to the expansion and modernization of the transportation system will be amortized by charges to the cost of service, commencing with the completion of the initial project for mass transportation.

(2) Railroad Commuter Subsidies

Under Chapter 24 of the Acts of 1967 and Chapter 728 of the Acts of 1968 as amended by Chapter 578 of the Acts of 1969 and Chapter 604 of the Acts of 1970, the Authority and the Commonwealth of Massachusetts entered into agreements whereby the Commonwealth has agreed to provide 90% of the cost of financing agreements with the railroads to provide service to and from Boston until July 31, 1971, but not to exceed \$18,846,000. In accordance with these agreements, financial assistance received by the Boston & Maine and Penn Central Railroads and related expenses thereto amounted to \$5,970,513 during the thirteen months ending December 31, 1970; \$5,140,999 paid by the Commonwealth and \$829,514 paid by the Authority.

(3) Relocation of Facilities

In April, 1967, the Authority entered into an agreement with the John Fitzgerald Kennedy Library Incorporated, whereby the Authority would relocate certain transportation facilities in order to convey certain properties to the United States and the Library Corporation.

The Commonwealth of Massachusetts appropriated \$6,098,400 to the Authority for the part of the properties conveyed to the United States. In addition, the Authority received \$1,330,112 from the Library Corporation for the remaining part of the properties, totaling \$7,428,512.

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

NOTES TO FINANCIAL STATEMENTS

DECEMBER 31, 1970

(Continued)

(3) Relocation of Facilities (Continued)

These facilities, having a net book value of \$709,807, have been retired. The amount received in excess of net book value (\$6,718,705) has been included in deferred credits to be offset against the cost of relocation.

In December, 1969, the Authority purchased for \$7,000,000 a parcel of property to be used to replace the facilities conveyed in 1967.

(4) Pension

The Authority has agreed to provide retirement benefits to employees through a contributory pension plan which requires the payment by the Authority of an amount not less than 11-5/8% of the total payroll of employees who are members of the plan but, in any event, sufficient to provide for the current cost of the plan and interest on unfunded past service costs net of members' contributions. The total pension costs for the thirteen months ended December 31, 1970 was \$9,350,000 which includes interest on unfunded past service costs but does not include amortization of the unfunded past service costs. The Authority is not legally obligated, under the agreement, to fund the actuarial cost of future benefits to present and retired employees based on past service costs. As of December 31, 1970, such unfunded costs approximated \$75,000,000. The actuarially computed value of the vested benefits of the plan as of December 31, 1970, exceeded the pension fund assets by approximately \$18,000,000.

Subsequent to December 31, 1970, the plan was amended increasing certain retirement benefits. An actuarial study to determine the effect of the revisions has not yet been completed, however, in the opinion of management, the annual cost of the plan, the amount of unfunded past service cost and the actuarial value of vested benefits will not increase a material amount.

(5) Injuries and Damages

The Authority is a self-insurer on claims for injuries and damages to the extent of \$100,000 per accident. Insurance coverage is carried on claims in excess of that amount up to a maximum limit of \$15,100,000 per accident. The Authority accounts for injuries and damages by charges to operating expenses as payments are made.

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

NOTES TO FINANCIAL STATEMENTS

DECEMBER 31, 1970

(Continued)

(6) Workmen's Compensation Insurance

Effective May 1, 1965, the Authority became a self-insurer on workmen's compensation claims under the workmen's compensation laws of the Commonwealth of Massachusetts to the extent of \$50,000 per occurrence. Insurance coverage is carried on each occurrence in excess of that amount up to a maximum limit of \$2,050,000 per occurrence. The Authority accounts for these claims by charges to operating expenses as payments are made.

Prior to May 1, 1965, the Authority was insured for workmen's compensation claims by an affiliate, The Transit Mutual Insurance Company. Transit Mutual's reserve for workmen's compensation claims as of May 1, 1965 has been carried over in the accounts of the Authority. The Authority charges payment of claims incurred prior to May 1, 1965 to this reserve.

(7) Unreimbursed Cost of Service

The legislative act under which the Massachusetts Bay Transportation Authority was established provides, among other things, that the Commonwealth of Massachusetts shall reimburse the Authority for the net cost of service. The amounts reimbursed are then assessed to the 79 cities and towns constituting the Authority. The net cost of service includes a charge for depreciation equal to the payments on long-term debt during the period.

The Authority provides for depreciation by following the generally accepted method of amortizing the cost of property over its estimated remaining useful life. In the current thirteen month period the Authority provided \$8,341,520 for depreciation of which \$7,113,436 represents payments on long-term debt. The balance of \$1,228,084 has been charged to the unreimbursed cost of service which will be recovered in future years when payments on long-term debt exceed depreciation computed on the estimated remaining useful life of the property.

(8) Grants

Under the Urban Mass Transportation Act of 1964, the Department of Transportation has approved for the Authority grants aggregating \$109,100,000. The Authority has received \$45,431,810 of this amount. These funds have been used by the Authority to purchase new buses and to modernize and expand mass transportation facilities.

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

NOTES TO FINANCIAL STATEMENTS

DECEMBER 31, 1970

(Continued)

(8) Grants (Continued)

Under an agreement between the Boston Redevelopment Authority and the Massachusetts Bay Transportation Authority, the BRA has approved grants aggregating \$12,000,000 in connection with the expansion of mass transportation facilities. The Massachusetts Bay Transportation Authority has incurred costs totaling \$6,255,158 related to this agreement. Of this amount they have not yet been reimbursed by the BRA for \$2,429,809 which is included in accounts receivable. Although substantially all of this amount and other amounts receivable from the BRA are past due, in the opinion of management, the receivable is collectible.

The grants are carried as a deferred credit and will be amortized over the life of the assets as an offset to the applicable depreciation expense. In the current thirteen month period, \$594,364 of amortization has been credited to the unreimbursed cost of service.

(9) Long-Term Debt

The legislative act under which the Massachusetts Bay Transportation Authority was established provides, among other things, if at any time any principal or interest is due on any bond or note issued or assumed by the Authority and funds to pay the same are not available, the Commonwealth of Massachusetts shall thereupon pay over to the Authority the amount required to meet such obligations.

(10) Construction Program

The Authority's program for mass transportation within the area constituting the Authority, as approved by the Authority's Advisory Board in 1966, is estimated at \$359,000,000. Financing requirements of the program are expected to be met through the issuance of \$225,000,000 of long-term debt securities. The legislative act authorizing the issuance of debt securities calls for participation by the Commonwealth of Massachusetts in the payment of principal and interest on \$145,000,000 of that amount to the extent of 90% for express service projects and 50% for local service projects or assistance to private carriers. The remaining financing requirements are expected to be met through Federal transit aid, Federal urban renewal funds and relocation cost reimbursements.

Expenditures in the program through December 31, 1970, have been financed through the issuance of \$175,000,000 of Massachusetts Bay Transportation Authority General Transportation System Bonds, Federal transit aid funds, and funds from the Boston Redevelopment Authority.

As of December 31, 1970, the Authority has entered into purchase commitments amounting to approximately \$40,000,000.

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

NOTES TO FINANCIAL STATEMENTS

DECEMBER 31, 1970

(Continued)

(11) Supplementary Operating Expense Information

Operating expenses captioned below consist of the following:

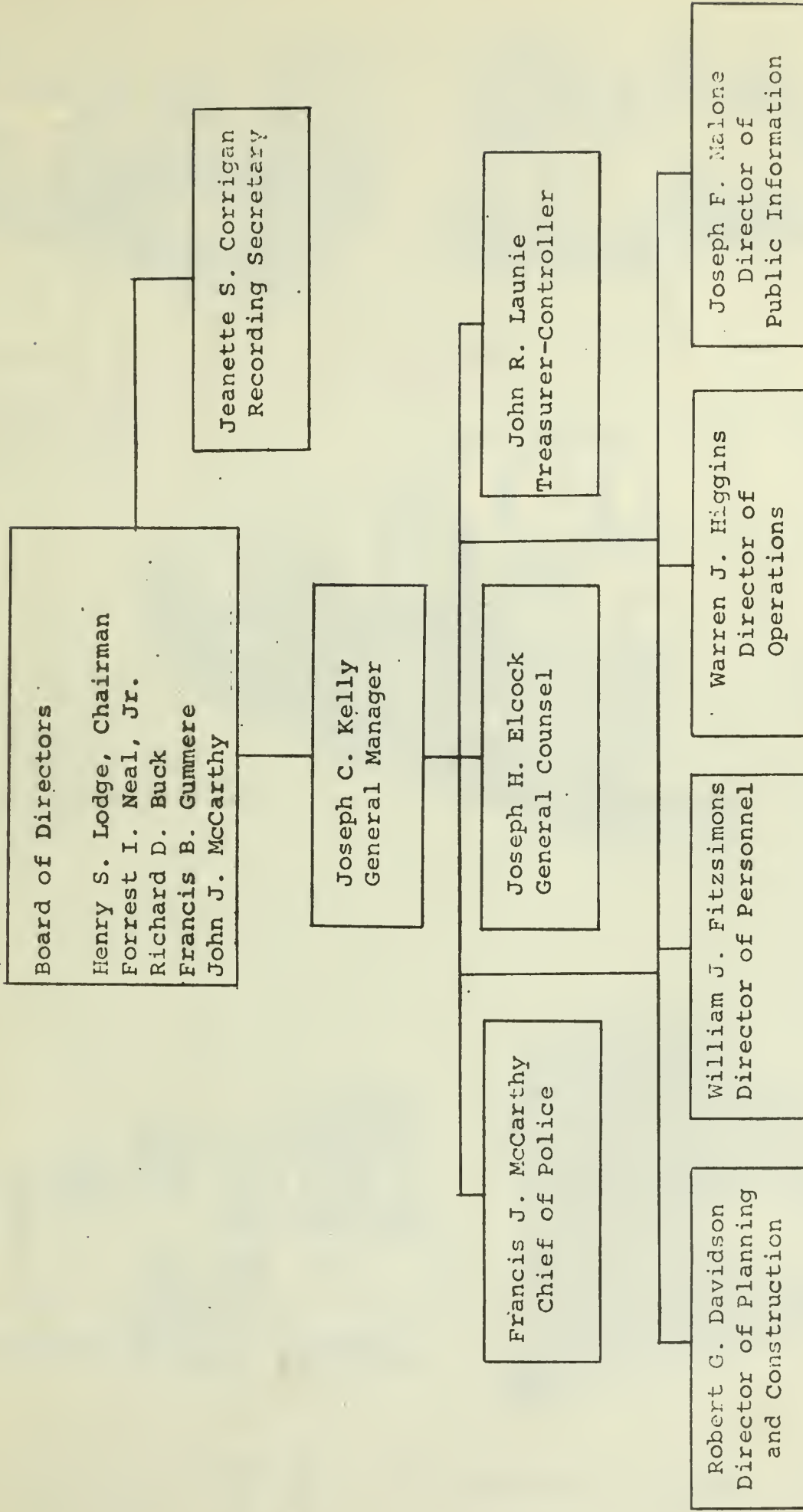
Transportation services -	
Salaries and wages	\$47,224,980
Taxes, including payroll taxes	2,301,099
Fuel	956,384
Other	2,921,890

	\$53,404,353
	=====
Maintenance -	
Salaries and wages	\$18,057,086
Materials and supplies	5,556,256
Taxes, including payroll taxes	620,919

	\$24,234,261
	=====
Electric power -	
Salaries and wages	\$ 2,306,282
Fuel	1,719,721
Taxes, including payroll taxes	78,887
Other	187,388

	\$ 4,292,278
	=====

The Organization of the Authority



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MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

TWELFTH ANNUAL REPORT



1976

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PART II. FINANCIAL STATEMENTS

An Explanation of Accounting Methods
Financial Statements

COVER: New and rebuilt passenger equipment placed in service in 1976.
Upper left - Rebuilt President's Conference Committee (PCC) Street-car #3072. Upper right - Western Flyer Trackless Trolley Car.
Center - Boeing-Vertol Light Rail Vehicle. Lower left - AM General Bus. Lower right - Fiat Commuter Railroad Car.





**MASSACHUSETTS
BAY
TRANSPORTATION
AUTHORITY**

45 High Street, Boston, Mass. 02110

March 31, 1977

His Excellency the Governor,
The General Court, The Secretary of Transportation and
The Advisory Board to the
Massachusetts Bay Transportation Authority

The Directors of the Massachusetts Bay Transportation Authority, in accordance with the requirements of Section 5(h) of Chapter 161A of the General Laws, herewith render the twelfth report of the Authority covering operations for the calendar year 1976.

SUMMARY OF THE NET COST OF SERVICE JANUARY 1, 1976 - DECEMBER 31, 1976

The Authority's net assessable cost of service to the 79 cities and towns, which will be assessed to them in November, 1977, was \$125,870,493.72 as of this date. It must be noted that this amount could be reduced -- to \$68,920,493.72 -- by additional state aid of \$56,950,000 which is awaiting action (House Bill No. 1) by the General Court. Such additional state aid was received in 1973, 1974 and 1975.

Total income in 1976 amounted to \$60,449,410.19 and total current expenses were \$223,225,625.05 leaving a cost of service in excess of income of \$162,776,214.86.

The difference between the cost of service in excess of income and the net assessable cost of service resulted from state reimbursement for the Authority's debt service; additional state aid for the railroad communities outside the MBTA district; the unreimbursed deficit; the depreciation, amortization and interest on the Penn Central loan; and Federal Operating Assistance of \$16,868,565.

In addition to the net assessable cost of service, there are two other items which must be considered by the 79 cities and towns in their settlement in November, 1977 of their 1976 accounts with the Commonwealth. These are the accounts:

	WITHOUT ADDITIONAL STATE AID	WITH ADDITIONAL STATE AID OF \$56,950,000 AS PROVIDED IN HOUSE BILL NO. 1
Net Assessable Cost of Service	\$125,870,493.72	\$68,920,493.72
Interest Charged by State Treasurer on Temporary Borrowings (Estimated)	\$ 8,500,000.00	\$ 8,500,000.00
Expenses of Boston Metro- politan District	<u>\$ 16,000.00</u>	<u>\$ 16,000.00</u>
Net Cost to Communities	\$134,386,493.72	\$77,436,493.72 *

*House Bill No. 1, the state budget for Fiscal Year 1978 beginning July 1, 1977, provides additional contract assistance of \$56,950,000, subject to legislative approval and appropriation.

The following page shows the Authority's net cost of service including all elements of cost for calendar year 1976 and the apportionment of these costs by express and local service.

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

STATEMENT OF NET COST OF SERVICE - BY EXPRESS AND LOCAL

CALENDAR YEAR JANUARY 1, 1976 TO DECEMBER 31, 1976

	<u>Express Service</u>	<u>Local Service</u>	<u>Total</u>
Income:			
Revenue from Transportation	\$26,042,569.99	\$27,079,745.41	\$53,122,315.40
Revenue from Other Rwy. Operations	1,481,323.73	475,425.67	1,956,749.40
Non-Operating Income	3,306,941.22	606,376.09	3,913,317.31
Gas & Diesel Tax Reimbursement	-	405,130.91	405,130.91
Reimbursement from Outside Communities	<u>305,053.17</u>	<u>746,844.00</u>	<u>1,051,897.17</u>
TOTAL INCOME	31,135,888.11	29,313,522.08	60,449,410.19
Operating Wages and Fringe Benefits:			
Wages	52,890,774.85	57,288,267.94	110,179,042.79
M.B.T.A. Pensions	7,006,058.56	7,565,366.15	14,571,424.71
Social Security Taxes	2,608,205.49	2,825,555.95	5,433,761.44
Workmen's Compensation	909,883.68	947,021.78	1,856,905.46
Accident and Sickness Insurance	210,473.70	219,064.47	429,538.17
Group Life Insurance	441,993.88	460,034.45	902,028.33
Blue Cross - Blue Shield	4,769,451.02	4,964,122.49	9,733,573.51
Unemployment Insurance	111,699.42	116,258.58	227,958.00
Uniform and Work Clothes	84,314.90	176,259.29	260,574.19
Fringe Benefit Cost Capitalized - Credit	<u>(1,023,279.78)</u>	<u>(1,065,046.31)</u>	<u>(2,088,326.09)</u>
TOTAL OPERATING WAGES AND FRINGE BENEFITS	68,009,575.72	73,496,904.79	141,506,480.51
Material and Other Items	9,417,812.47	8,534,545.77	17,952,358.24
Injuries and Damages	617,451.66	1,890,711.89	2,508,163.55
Depreciation/Amortization/Interest on Penn Central Loan	<u>(1,112,386.65)</u>	161,878.74	<u>(950,507.91)</u>
Interest on Unfunded Debt	1,486,828.65	1,216,496.65	2,703,325.30
Fuel	7,849,578.88	3,946,241.59	11,795,820.47
Taxes (Other than included above)	88,026.30	704,776.12	792,802.42
Railroad Commuter Subsidy	17,654,431.12	-	17,654,431.12
Rapid Transit Inc. Subsidy	<u>-</u>	<u>373,910.15</u>	<u>373,910.15</u>
TOTAL OPERATING EXPENSES AND TAXES	104,011,318.15	90,325,465.70	194,336,783.85
Fixed Charges:			
Interest on Funded Debt (M.T.A.)	2,726,409.56	1,283,016.27	4,009,425.83
Interest on Funded Debt (M.B.T.A.)	12,397,904.74	710,741.90	13,108,646.64
Payment on Funded Debt (M.T.A.)	2,093,168.55	1,127,090.72	3,220,259.27
Payment on Funded Debt (M.B.T.A.)	7,002,000.00	1,499,748.25	8,501,748.25
Cambridge Subway Rental (M.T.A.)	5,933.33	-	5,933.33
Miscellaneous Debits (M.T.A.)	7,750.23	3,647.16	11,397.39
Bank Service Charges (M.B.T.A.)	<u>29,049.77</u>	<u>2,380.72</u>	<u>31,430.49</u>
TOTAL FIXED CHARGES	24,262,216.18	4,626,625.02	28,888,841.20
TOTAL CURRENT EXPENSES	128,273,534.33	94,952,090.72	223,225,625.05
COST OF SERVICE IN EXCESS OF INCOME	97,137,646.22	65,638,568.64	162,776,214.86
Less:			
State Fin. Contract Assistance:			
Chapter 161A of G.L. (Sec.28)-M.T.A.	3,000,000.00	-	3,000,000.00
Chapter 161A of G.L. (Sec.28)-M.B.T.A.	15,973,676.84	1,494,905.13	17,468,581.97
Chapter 859, Acts of 1975-M.B.T.A.	200,332.08	-	200,332.08
Chapter 283, Acts of 1976-M.B.T.A.	318,750.00	-	318,750.00
House Bill #1, Pending Approval	27,778,570.29	29,171,429.71	56,950,000.00
Federal Operating Assistance	<u>9,028,056.00</u>	<u>7,840,509.00</u>	<u>16,868,565.00</u>
TOTAL ASSISTANCE	56,299,385.21	38,506,843.84	94,806,229.05
NET COST OF SERVICE - LOSS	40,838,261.01	27,131,724.80	67,969,985.81
LESS - UNREIMBURSED DEFICIT	<u>(1,112,386.65)</u>	<u>161,878.74</u>	<u>(950,507.91)</u>
NET ASSESSABLE COST OF SERVICE	\$41,950,647.66	\$26,969,846.06	\$68,920,493.72

HIGHLIGHTS OF 1976

The most visible changes in 1976, the 12th year for the Massachusetts Bay Transportation Authority, were new buses, new trackless trolleys, a new commuter rail car, a completely rehabilitated 1944 streetcar, and finally--on December 30 in the midst of a major snow storm--new light rail vehicles.

It was a year of valleys and peaks in carrying passengers. The lowest point came in January, as a result of the 12 days of storms in December, 1975. The peak came in the celebration of the 200th anniversary of American independence as unprecedented crowds took public transportation to see the celebration of July 4th on Boston's Esplanade and to see the Tall Ships in Boston harbor. The Christian Science Monitor, in an article reviewing the year, said: "For those who remembered the December, 1975 snowstorm as one of the MBTA's worst times, one of its best times came about half a year later. Bostonians celebrated America's 200th Fourth of July by going places--to the Tall Ships, to fireworks displays on the Esplanade, to parades, to exhibits, and to follow the visiting Queen Elizabeth II of England. In the space of a few days, the MBTA was asked to carry hundreds of thousands of passengers--in addition to its usual load of commuters and shoppers. To the surprise of many MBTA officials as well as the travelling public, the system held up very well--with no delays, no accidents, no additional crime, and no complaints about MBTA employees."

The performance of the MBTA in the Bicentennial celebration was a coordinated effort of many departments and many employees, and brought a renewed sense of pride to the organization. It was the most public showing of a key achievement in 1976--the development of a management capability to act quickly and in a coordinated way in complex situations.

The principal evidence of that achievement was that for the first time in many years, the MBTA stayed within its budget in 1976. No supplementary budget was submitted. Indeed, more than \$6 million voted by the MBTA Advisory Board was not spent. The underspending was accomplished by improved control over manpower levels, improved management sensitivity to the effect of cost increases, and by outside circumstances which had some favorable impact on the MBTA budget by the end of the year.

However, the budget situation looked grim in February when it was announced in Washington that the Boston cost of living had increased in the three months ending January 31 at a rate 10 times greater than the national average. The impact on the MBTA was estimated to be \$4 million more than was budgeted. It forced a tough decision. Chairman Robert R. Kiley notified union leaders by telegram: "If the Authority is forced to pay the cost-of-living adjustment, the only method available to the Authority to provide such funds is a significant reduction in the number of Authority employees. Although it is personally repugnant to me, particularly in this time of wide-spread employment, such a reduction can be accomplished only by an Authority-wide layoff." The Boston Carmen's Union said it would force payment of the increase, and the issue went to arbitration.

A drastic cut-back in summer transportation service was needed to meet the budget crisis. Using the Service Policy for Surface Transportation, which the Advisory Board had approved December 30, 1975, a concerted effort by the Operations Planning Office in the Operations Directorate and the Service Planning Office in the Community Affairs Directorate closely analyzed how the service cutbacks could best be made. On March 31, an arbitrator ruled that the MBTA was bound by the contract to pay 100 percent of the increase in Boston's cost-of-living. Chairman Kiley announced: "We are forced to pay a quarterly cost-of-living increase which is the most expensive in the history of the Authority. Thus, I have instructed the Authority's Director of Operations to institute summer and fall timetables which will enable us to fund this increase. This means service reductions which will eliminate or curtail the MBTA's least popular, least used, least economical services. And this also means a corresponding reduction in the Authority's work force at all levels".

There ensued a hectic period in which sub-standard bus routes were identified by use of the Service Policy guidelines, and community leaders were notified and consulted on the changes. By drawing some other bus routes into areas where cuts had to be made, the impact on the riding public was lessened. In the process, five traditional bus routes--which had not changed while community population dropped--were eliminated. These routes had cost anywhere from nine to 100 times what was taken in at the farebox. Another eight routes, in competition with parallel MBTA transportation, also were cut. Off-peak service was curtailed on eight other routes. The number of buses running per hour was reduced to varying degrees on 87 more bus routes. Chairman Kiley commented, when the cuts were announced a month in advance of the start of the summer timetable: "It was a painful process. It is the kind of pruning of bus service which normally might have been spread over the timetable for three seasons. But it is the kind of pruning of the dying branches of our service which is needed if the healthy trunk and limbs of our transportation network are to survive in this period of high inflation. It is the kind of pruning which is needed if we are to gain control over the MBTA's operating costs".

Substantial progress was made in gaining control of MBTA costs with the final binding decision on May 20 of the arbitration panel. The two-year contract calls for no wage increase for the two years of the contract with the Boston Carmen's Union. Under the terms of the old contract, wage increases of 2-1/2% had been awarded in 1974 and 1975, in addition to the cost-of-living adjustments made in those years. There was a moratorium on any further cost-of-living adjustments for the remainder of 1976. As of January 1, 1977, the arbitration panel reinstated the cost-of-living protection and adjustments. The award basically balanced various productivity gains for management with some increases in fringe benefits for the union members. For example, while salaries for the system's supervisors, the starters and inspectors, were increased 6% and 9% respectively over the top rated bus driver's basic pay, the Authority need no longer provide for its bus drivers an annual "pick" of where they want to work. Such "picks" will now be provided every other year. A no-layoff provision, as contained in the expired contract, was also reinstated until December 31, 1977.

More pruning of costs came in an intense period of budget preparation. More than \$20 million of programs proposed by department heads for 1977 were trimmed from the budget submitted to the Advisory Board on October 1. As a result, the

increase for the proposed 1977 budget over the 1976 approved budget was kept to 5.9 percent (\$13.7 million). It was the first time in years that the MBTA budget had beaten inflation, and it had occurred despite increases of \$14.9 million in the cost of health care, cost-of-living adjustments, and commuter rail subsidy. The manpower to operate the system had dropped slightly more than anticipated by year's end, but additional manpower is expected in 1977 as vacancies are filled to build service back to the higher levels forecast in the budget. The forecasts of the 1977 budget may have to be redetermined if the Massachusetts Supreme Judicial Court upholds the MBTA Advisory Board's challenge on December 27 to the labor contracts established through collective bargaining and to the contract established by binding arbitration with the Boston Carmen's Union in May. The Advisory Board challenged these contracts by deleting from the 1977 budget \$6,153,210 which they specified was for cost-of-living adjustments. Chairman Kiley stated he was compelled by contractual obligations to pay the adjustments, and he would honor the contracts.

The public cost of 1976 transportation, expected to be borne in November, 1977 by Federal, state and local taxpayers, was some \$4 million less than anticipated at the beginning of the year. This was a result of the MBTA not spending more than \$6 million in the 1976 budget approved by the Advisory Board, and an offsetting decrease of more than \$2 million in investment income. Thus, despite a decrease in expected income, public cost did not increase by that amount but rather decreased by some \$4 million.

Increased productivity was notable in a number of departments in 1976. There was less crime and more information on the MBTA. Under the direction of a new Chief of MBTA Police, that department redeployed its manpower to patrol more effectively in subway stations and other areas with a high incidence of crime. As a result, transit crime was reduced 38 percent. An effective detective force achieved some notable arrests and convictions on major holdups and larcenies of MBTA revenue. For public information, the MBTA distributed directly to its passengers literally hundreds of thousands of maps, bus route brochures, schedules and--new in 1976--information bulletins about problems on the transit system. The information bulletins were an example of new management coordination: the Public Information Office at 45 High Street wrote the bulletins with information supplied by various departments; the Service and Report Production unit of the Treasurer's Office at 500 Arborway printed them; and the Community Affairs and Marketing Directorate at Back Bay Station distributed them to passengers at subway, bus and train stations.

In another major public information drive, Chairman Kiley and department heads throughout the MBTA organized and attended Public Forums in the seven transportation service areas to seek ideas and answer questions from the public. Although public attendance was rather disappointingly low, some valuable suggestions were made to improve service to the public.

A major management initiative in 1976 was the establishment of an Affirmative Action program which set an interim goal of hiring minorities for 50 percent of vacancies and a long-range goal of having 20 percent of employees be from minority enterprises also were established, and the Board of Directors adopted the policy on November 10.

Throughout the year, the Operations Directorate and other departments continued their reorganization to try to use talent more effectively. A notable change was the joining of the rail equipment maintenance carhouses and the heavy maintenance shop at Everett under a Chief Mechanical Officer in order to get vehicles back into passenger service more quickly.

A major step in controlling future costs through productivity increases was made with the labor agreement to establish carhouse repairman specialists. Eleven MBTA employees were appointed to the position on October 15 after becoming the first graduates of a rigorous five-week training and testing program. The program they took qualifies them to maintain the Light Rail Vehicles, which have sophisticated electronic equipment and many other new parts. Such a job classification and training program is critical to keeping the MBTA's repair capabilities up to date with the new equipment being manufactured.

The Light Rail Vehicle itself represented both a low point and a high point in 1976. The vehicles were not ready as originally scheduled. But the vehicles also were put through a rigorous testing program which found many "bugs" which were worked out before they were put into passenger service. Scheduled for inauguration on January 5, 1977, four LRVs were pressed into duty on Thursday, December 30, 1976 in the midst of the second day of a storm which was to prove, in the month following, even worse than the previous winter's storms. Other new equipment which was put into passenger service in 1976 were 128 AM General buses; 50 trackless trolleys (trolley buses) made by Western Flyer Coach Ltd., of Winnipeg, Manitoba; a single Fiat rail diesel car which was tested for the first time in America on the MBTA-subsidized Boston & Maine commuter rail network north of Boston; and the rehabilitated 1944 streetcar, No. 3072, which was completely rebuilt by the Watertown shop. It has become the most dependable vehicle in the MBTA fleet because it's available for service 90 percent of the time.

Besides the support programs necessary to get these Federally-subsidized vehicles ready for the Operations Directorate, the Construction Directorate again had a record year in obtaining Federal grants. The \$236 million of Federal money committed to the MBTA in 1976 will mean construction jobs and improvements in service in the future.

Summing up the year, the Advisory Board Budget Committee said:

"Substantive progress in creative and efficient use of management techniques, budget techniques, and public information techniques indeed brings the Authority miles ahead of last year. The narrative in the "T" budget submission describes but a small portion of the '76 accomplishments. The Advisory Board budget tracking speaks to some other accomplishments. Much, however, has been accomplished without recognition."

Ⓣ STATISTICS 1976

Boston Elevated Railway Company (Chartered)	1894
Public Contract Act (By Legislation)	1918
Metropolitan Transit Authority - MTA (By Legislation)	1947
Massachusetts Bay Transportation Authority - Ⓣ (By Legislation)	1964

Population of 79 Communities in Ⓣ District (1970 U.S. Census) 2,763,410

The Ⓣ operates about 1,300 vehicles which travel 135,000 miles each weekday.

Number of Bus Routes	194
Number of Streetcar Routes	5
Number of Rapid Transit Routes	3
Number of Trackless Trolley Routes	4
Buses	1,215
Streetcars (278) and Light Rail Vehicles (28)	306
Rapid Transit Cars	339
Trackless Trolleys	61

Daily Passengers (Approx.)	487,000
Annual Passengers (Approx.)	145,740,000

Rapid Transit Stations 44

Rapid Transit Route Miles (One Way) 38.1

- Red Line: Harvard-Ashmont, 9.5; Harvard-Quincy, 11.7
- Orange Line: Forest Hills-Malden Center, 10.1
- Blue Line: Bowdoin-Wonderland, 6.8

Rapid Transit Route Miles under Construction (One Way), 4.0

Proposed Rapid Transit Route Miles (One Way), 15.4

Streetcar Route Miles (One Way) 35.1

- Riverside-North Station, 12.5
- Arborway-Park, 5.5
- Lake St.,-Lechmere, via Commonwealth Ave., 8.0
- Cleveland Circle-Lechmere, via Beacon St., 6.6
- Ashmont-Mattapan, 2.5

Trackless Trolley Route Miles (One Way) 15.75

Bus Route Miles	<u>716.6</u>
Total Route Miles Operated	805.55

Bus Revenue Miles 24,989,800

Rapid Transit Revenue Miles 11,037,765

Streetcar Revenue Miles 5,800,240

Trackless Trolley Revenue Miles 858,525

Annual Revenue Miles Operated 42,686,330

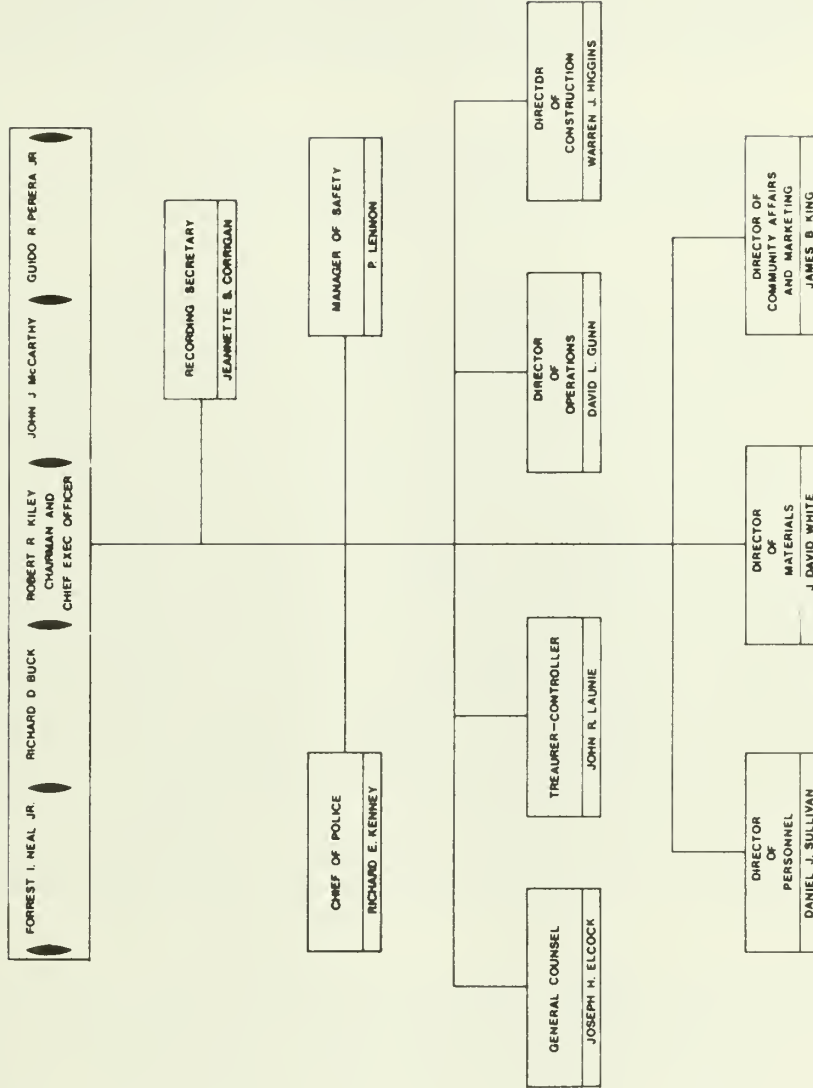
Employees (Capital budget: 233; Operating budget: permanent and temporary-6,019) 6,252

Collective Bargaining Units 28

Commuter Rail Statistics

	<u>Penn Central/Conrail</u>	<u>Boston & Maine R.R.</u>
Number of Locomotives	23	--
Number of Coaches	84	--
Number of Rail Diesel Cars	8	84
Route Miles	98.6	145.3
Daily Passengers	12,500	17,500
Annual Passengers	3,022,000	4,540,000

BOARD OF DIRECTORS



REPORTS FROM THE DEPARTMENTS

EXECUTIVE OFFICE

The Executive Office supports the Chairman and Chief Executive Officer in managing the Authority. It provides program and policy analysis and recommendations; assists the Chairman and the departments in setting goals and objectives for management and service performance; furnishes assistance to departments on planning, management and organizational problems; reviews and prepares the annual capital and operating budgets; monitors and evaluates departmental performance and spending; conducts special analyses of operations, service costs and productivity; develops strategies for maximizing Federal aid to the Authority; and distributes information to the press, Advisory Board, legislature and the public.

The Executive Office consists of the Office of the Chairman and Board of Directors; the Office of Budget and Operations Analysis; and the Office of Administrative Services, which includes the Office of Public Information.

Created largely as a result of 1973 legislation which vested in one person the responsibilities of both Chairman of the Board of Directors and Chief Executive Officer, the Executive Office in 1976 took an initial series of steps toward strengthening the Authority's planning, budgeting and reporting systems. In this regard, the intent has been to improve the basis for top management decision-making as well as to insure that appropriate management controls were established and functioning properly. For example, a new system of budget controls was initiated, which requires not only the preparation by each department of twelve month spending plans, but also periodic, formal reviews of each department's program and budget performance. This process, by monitoring problems in a timely enough manner to permit adjustment in management plans and resources, contributed to the Authority's completing 1976 without the need for a supplemental appropriation from the Advisory Board, the first such occurrence in many years. Moreover, through the efforts of a newly organized Capital Budget Committee, the MBTA has established its own recommended capital investment priorities for 1977. Another initiative carried out by the Executive Office has been a review of the Authority's published policies and procedures which govern internal operations and administration. By the end of 1976, the Authority had begun a complete revision of all internal procedures to insure their pertinence, consistency and clarity.

Through the work of the Assistant to the Chairman and the Director of Public Information, the Executive Office has greatly improved the Authority's communication with the public and responsiveness to complaints and requests for information. One notable illustration of these efforts is the newly initiated WEEI public information spot announcements concerning rush hour service. The widely disseminated announcements at the time of the July Fourth and Tall Ships ceremonies, which diverted millions of people away from traffic congestion and onto public transportation, provide another vivid example of the contribution of the Authority's public information capabilities to overall service and revenue goals.

OPERATIONS DIRECTORATE

The Operations Directorate had the responsibility in 1976 of carrying 153,282,000 passengers on MBTA-operated vehicles (145,740,000) and on commuter rail cars (7,562,000). It coordinated and monitored the activities of more than 5500 MBTA employees in Transportation, Rail Equipment Maintenance, Automotive Equipment Maintenance, Commuter Rail, Engineering Maintenance, and Operations Planning. It had a budget of about \$170 million. Its operators and vehicles, responding to seasonal demand and budget limitations, made between 10,000 and 12,000 round trips each weekday.

Major areas of concern in 1976 were reorganization of the various departments in the Operations Directorate (re-created in November, 1975); keeping within the budget; beginning painting and cleaning campaigns on vehicles; tightening up work habits; improving productivity through the better use of manpower; the arrival, testing and operation of the Light Rail Vehicle, and starting operation of the new LRV Carhouse; the establishment of the position of Carhouse Repairman Specialist to maintain the new rail equipment; and the phasing out of Tewksbury bus garage and the Eliot Red Line rapid transit carhouse. A major sideline was negotiations on the final terms of the contract to purchase the Boston & Maine Railroad's property and vehicles in Massachusetts. The purchase, which was initially agreed to in July, 1975, was made final on December 27, 1976.

Major reorganizations were undertaken in the Rail Equipment Maintenance Department with the appointment in May of a Chief Mechanical Officer to oversee the operations of rail equipment carhouses for the Green, Red, Orange and Blue Lines; the heavy repairs (engine overhaul and collision repair) to rail and automotive equipment at Everett Shops; and the equipment engineering unit.

Another major reorganization was the placement of all operations and maintenance of structures--128 buildings including 60 station structures; 180 miles of track; 30 bridges; power lines; and signal lines--under the Engineering and Maintenance Department, headed by the Chief Engineer. In a middle management reorganization, the Automotive Equipment Maintenance Department upgraded five garage foremen to a new management position of District Maintenance Supervisors. The objective of the reorganization was to upgrade the responsibilities of the managers of bus garages and to improve accountability for performance, and to define more accurately the separation between labor and management.

Keeping within the budget was made possible in part by the Operations Planning Office, whose work in trimming back poor-performing bus routes for the Summer timetable to meet a budget crisis which has been described in the Highlights of 1976. With the Summer timetable for buses reduced by 20 percent, the MBTA was able to keep within its budget and to use manpower more effectively. The manpower level was reduced by careful planning made necessary by the no-layoff clauses in our contracts. More drivers took summer vacations than usual. Some bus drivers switched to track maintenance work or other MBTA jobs for the summer, thereby achieving a better use of manpower. Under Service Policy guidelines, bus service outside the MBTA district to Lowell was transferred to the Lowell Regional Transit Authority in June, permitting the closing of the Tewksbury garage. In September, again under Service Policy guidelines, the MBTA began reducing the number of expensive, special school bus runs that it made. With these reductions, it was possible at the end of the year to sell some of the older, less maintainable buses, thereby making bus fleet maintenance more efficient and more manageable.

The net effect of these changes in 1976 was that well over a million dollars was not spent and, therefore not charged against the taxpayers.

On the other hand, the rapid transit service was increased substantially in the autumn timetable on the Orange and Red Lines. The frequency of buses, cut back on scores of routes in the summer, were restored in September.

The Orange Line was the top performing line by far, with service problems on only a few days. There were a number of major problems in the delivery of transportation service on other lines in 1976. The Blue Line's passengers suffered after a 1500 kilowatt rectifier blew out February 6, forcing a reduction in the number of trains for much of the time until March 22 when the rebuilt rectifier was installed at the Orient Heights power substation in East Boston. Weekday Blue Line commuter service also suffered from sporadic one day problems such as overhead wire being down, power failures, signal problems, switch problems, one notable instance of vandalism along the rails, the burning of the outbound platform of Suffolk Downs Station on February 15, and of course, snow and ice problems. The Red Line was plagued particularly by sporadic winter weather problems in January, February, March and December; by signal and switch problems off and on during the year; and by problems in September and October with the Cambridge-Dorchester Red Line cars (called Bluebirds because they were painted blue when delivered in 1963). On September 13, a Bluebird train derailed at Andrew Station. The cause was a broken axle. On October 5, between South Station and Broadway Station, another Bluebird broke its axle. That night, the MBTA announced it was withholding 38 Bluebirds from further service pending inspection of their axles over the next nine days. Consequently, rush hour service was reduced from 13 four-car trains from Quincy and 13 four-car trains from Ashmont to 8 four-car trains from Quincy and 8 four-car trains from Ashmont. Ultrasonic inspection and further inspection measures found that many other axles had hairline cracks which could have resulted in other derailments. A concerted program of axle replacement was immediately begun and service was gradually restored.

The 26-to-36-year-old stable of Green Line streetcars started off 1976 as the victims of the 12-day December 1975 storm. They ended 1976 plagued by the December 29-30 storm which prompted the introduction of the Light Rail Vehicles to the Green Line. In between, despite many breakdowns, the streetcars generally made the scheduled trips. Between the storms of January-March and December, the battle to maintain the cars was waged with more success than failure but the resulting level of service was still below public demand.

The "Yellow Line" of buses, in addition to their regular service, picked up the passengers when there was a breakdown in the fixed rail system. Substitute bus service was provided at various times on every rapid transit line. Additional service was provided for special events.

The most special event of the transportation year was the Bicentennial celebration of the 4th of July, the visit of Queen Elizabeth II of Great Britain on July 11, and the Tall Ships visit July 10-15. The MBTA organized extra service, the public was informed of transit schedules and areas where cars could be parked, and an extraordinary number of people took public transportation. Hundreds of thousands of people crowded the streets of Boston, leaving their cars at home or in outlying areas. The MBTA, accustomed to individual complaints about individual employees or vehicles, received an outpouring of letters of commendation about the Bicentennial service. An Everett woman wrote the Chairman:

"May I offer my congratulations to you and everybody employed by the MBTA for the wonderful service provided for our Bicentennial celebration. Many of them had to work on their days off and vacation time, but they were all so courteous and very patient with the many passengers and children. It was wonderful. They all deserve a lot of credit. The service was fantastic. Bless them all."

The Tall Ships and the Queen's visit generated much good will. So, in their various areas, did the new equipment the MBTA introduced to passenger service in 1976. New trackless trolleys made their debut in the Spring. A Fiat rail diesel car, made available to the MBTA for the Federally-subsidized cost of shipping, was tested in America for the first time on the Boston & Maine commuter rail network and put into passenger service on August 30. On September 15, President's Conference Committee (PCC) Car No. 3072 was returned to service on the Arborway Line after being completely rebuilt at the Watertown Carhouse and the Everett Shops. On October 14, the new high profile of the air-conditioned AM General buses was seen on the streets of Boston for the first time. A total of 128 of the new buses were delivered for use throughout the MBTA district.

The inauguration of the Light Rail Vehicles into service on December 30 capped a year of long preparation for the day. The new Riverside Carhouse was dedicated in January, and the first LRV test vehicle arrived in late March. The first vehicles destined for passenger service arrived in September. Negotiations with the union produced a new job classification, carhouse repairman specialist, to maintain the LRV.

Other vehicles were being renewed while the LRV was being manufactured. The 1951-52 cars on the East Boston line were repainted and two "Bluebirds" on the Cambridge-Dorchester Red Line were repainted as prototype "Red Birds". The 1977 rehabilitation of these Bluebirds will include as a last touch the new paint job, which coordinates the color of the vehicle with the color of the line. Besides the glamour of new paint, more preventative maintenance inspection programs were carried out on vehicles. As a further part of this clean-up campaign, a drive was instituted to ensure that such particulars as the destination signs on transit cars and buses were correct. A committee started to investigate the replacement of the 1960's style uniform. On the rapid transit lines, many stations were repainted.

In the Commuter Rail Operations office, ridership to the south and west increased slightly, while ridership to the north decreased when towns and cities outside the MBTA district decided to eliminate the local subsidy of the service. To the south, the Penn Central commuter lines were taken over by Conrail in April. As the year closed, the sale of the Boston & Maine properties in Massachusetts to the MBTA was completed, thereby opening the prospect of Federal capital grants to rehabilitate the commuter rail service.

CONSTRUCTION DIRECTORATE

The Construction Directorate experienced a record year in 1976 in the award of Federal grants and loans that enabled the MBTA to go forward with its plans for expanding and modernizing metropolitan Boston's transportation system, to acquire the Boston & Maine Railroad properties and equipment, and to help offset the cost of service assessable to the 79 cities and towns in the transportation district.

The funds approved by the Urban Mass Transportation Administration, Department of Transportation, amount to \$236,235,155, an increase of 115.4 percent over 1975, which was also a record year. All but \$52,213,847, which represents operating assistance and the loan for the B & M acquisition, were 80 percent capital grants available to carry out the $\text{\textcircled{T}}$'s Program for Mass Transportation. In the past two years, the $\text{\textcircled{T}}$ has received \$345,903,478 in Federal funds almost as much as the \$347,577,094 received in Federal funds in the previous 10 years.

The Construction Directorate's activities for 1976 saw the award of about \$16 million in new construction contracts, the winding down of the \$180 million dollar Haymarket-North Extension with the completion of the Oak Grove Station in Malden and Melrose, continuing progress on prior year contracts, and contract awards for design and engineering for planned rapid transit projects and for studies for future transportation services.

While Oak Grove Station was completed, the opening for revenue service was delayed until the Spring of 1977 pending completion of a study of the impact the station will have on land use and traffic in the area.

Of the nearly \$16 million in new construction contracts awarded, the major ones were for: modernization of the Green Line's Park Street Station (\$3,625,000) and Auditorium Station (\$632,000); improvements to the Green Line's Riverside Line (two contracts totaling \$2,938,163); modernization of State Station including a new entrance/exit in the Old State House for the Orange and Blue Lines (\$948,000); modernization of Washington Station on the Red and Orange Lines (two contracts totaling \$2,683,000); reconstruction of a Mystic River bulkhead, demolition of buildings and site work for the Charlestown Bus Storage and Maintenance Facility (three contracts totaling \$1,826,452); repairs to the Green Line's elevated structure from the north subway portal to Lechmere Station, Cambridge (\$950,124), and repairs to the Red Line's Longfellow Bridge and approach spans (\$578,435).

Work continued on contracts awarded in 1975 for major modernization work at Ashmont Station on the Red Line and Haymarket Station on the Orange Line and minor modernization work at the Orange Line's six elevated stations between the subway portal and Forest Hills.

By year's end, design and engineering work was underway on:

--the planned 6.5 mile Red Line extension in the Northwest Corridor. The extension is to be a deep bore tunnel from Harvard Square to Davis Square, Somerville, and a cut and cover tunnel from Davis Square to Arlington Heights. The tunnel as far as Alewife Brook Parkway and four of the six stations are under design. The other new stations will be at Harvard Square (replacing the existing station); Porter Square in Cambridge; Davis Sq., Somerville; and Alewife Brook Parkway, Cambridge, where there is to be a 2,000-car parking garage, and Arlington Center. The extension is scheduled for completion in 1982.

--the 3.4-mile extension of the Red Line in the South Shore Corridor from Quincy Center Station to South Braintree. The extension and two stations, South Quincy with a 2,000-car garage, and South Braintree with a 1,200-car parking garage, are under design. The first construction contract (\$205,569) was awarded in July for sitework and completed in the Fall. Construction is to proceed at a fast pace during the next two years.

--the 4.7-mile relocated Orange Line between a new South Cove tunnel connection and Forest Hills. (Design work to complete the South Cove tunnel and a new subway station was completed. Construction is scheduled to begin in early 1977. The relocated Orange Line will be built on the existing railroad main line right-of-way. The railroad embankment will be depressed and will accommodate a three-track railroad and two-track Orange Line. There will be nine new rapid transit stations, three of which will also serve railroad passengers. The Southwest Corridor Project is scheduled for completion in 1981.

--the nine-mile Dorchester Division (Midland Branch) which is to be rebuilt for use by **T** commuter and Amtrak passenger trains during the relocation of the Orange Line and the rehabilitation of the railroad main line. The reconstructed line is scheduled to be ready for service in 1978.

--the 18-mile Franklin Branch which is to be rehabilitated between Readville and Franklin for the commuter railroad service. The work, scheduled to be completed in 1977, will be done under a force account agreement with the operator of the service.

Other design, engineering or architectural contracts awarded during 1976 were for: The new Charlestown Bus Storage and Maintenance Facility; a cashier's receiving building at Charlestown; the immediate needs-power generation project and a bulk power purchase switching facility; a signal repair facility to be located at the Cabot Transportation Center in South Boston; structural and track realignment of the northbound curve of the Orange Line south of Dudley Station; subway ventilation improvements, and minor systemwide improvements.

Because the **T** anticipated acquiring Boston & Maine Railroad properties and commuter equipment before year's end, several studies for improving the lines, stations and rolling stock were undertaken and design engineering contracts awarded to implement the results of the studies.

The first phase of feasibility studies and environmental analyses of transportation alternatives in the Lexington area of the Northwest Corridor and in the Lynn area of the Northeast Corridor, including extending the Blue Line from Wonderland Station, Revere, to Lynn, were completed and forwarded to the Urban Mass Transportation Administration, U.S. Department of Transportation. Started during the year was a feasibility study and environmental analysis of a South End/Roxbury replacement service to be implemented when the Orange Line is relocated. A similar study for the area served by the Needham Branch commuter railroad was nearing completion at the close of 1976.

FEDERAL GRANTS and LOANS in CALENDAR 1976

<u>Project Description</u>	<u>Date</u>	<u>Federal Share</u>		<u>Local Share</u>		<u>Total</u>
		\$	(%)	\$	(%)	
Green Line Amendment	3/22/76	9,256,368	(80%)	2,314,092	(20%)	\$ 11,570,460
Midland Division	4/09/76	12,800,000	(80%)*	3,200,000	(20%)	16,000,000
South Cove Tunnel	4/09/76	26,950,400	(80%)*	6,737,600	(20%)	33,688,000
Operating Assistance	6/10/76	11,172,532	(8 1/2%)**	120,142,567	(91 1/2%)	131,315,099
South Quincy RT Station	7/21/76	21,015,044	(80%)	5,253,761	(20%)	26,268,805
Power Improvements	7/21/76	12,518,560	(80%)	3,129,640	(20%)	15,648,200
Purchase 19C RT Cars	7/21/76	18,418,920	(80%)*	4,604,730	(20%)	23,023,650
South Shore Extension	7/21/76	60,320	(80%)	15,080	(20%)	75,400
Haymarket-North Extension	7/21/76	2,918,244	(80%)	729,561	(20%)	3,647,805
Cabot Maintenance Center	7/21/76	551,712	(80%)	137,928	(20%)	689,640
Systemwide Modernization	7/21/76	162,204	(80%)	40,551	(20%)	202,755
Station Modernization-II	7/21/76	216,004	(80%)	54,001	(20%)	270,005
Green Line Improvements	7/21/76	713,744	(80%)	178,436	(20%)	892,180
Purchase 125 Buses	7/21/76	48,968	(80%)	12,242	(20%)	61,210
Power Improvements	7/21/76	42,320	(80%)	10,580	(20%)	52,900
Green Line Vehicle	7/21/76	884,740	(80%)	221,185	(20%)	1,105,925
Safety Improvements	7/21/76	220,176	(80%)	55,044	(20%)	275,220
Plant Improvements-II	7/21/76	370,728	(80%)	92,682	(20%)	463,410
Purchase 50 Trackless Trolleys	7/21/76	57,908	(80%)	14,477	(20%)	72,385
Restoration of Orange Line	7/21/76	204,520	(80%)	51,130	(20%)	255,650
Charlestown Bus Garage	10/06/76	13,202,100	(80%)	3,300,525	(20%)	16,502,625
Unified Work Program	10/06/76	3,000,000	(80%)*	750,000	(20%)	3,750,000
Boston & Maine Loan CRIP II	10/06/76	24,172,750	(100%)**	---		24,172,750
CRIP II	10/06/76	46,308,960	(80%)*	11,577,240	(20%)	57,886,200
Modernize 88 Red Line Cars	10/06/76	14,099,368	(80%)*	3,524,842	(20%)	17,624,210
Operating Assistance	12/11/76	16,868,565	(11 2/3%)**	127,881,575	(88 1/3%)	144,750,140
GRAND TOTALS		\$ 236,235,155		\$ 294,029,469		\$ 530,264,624

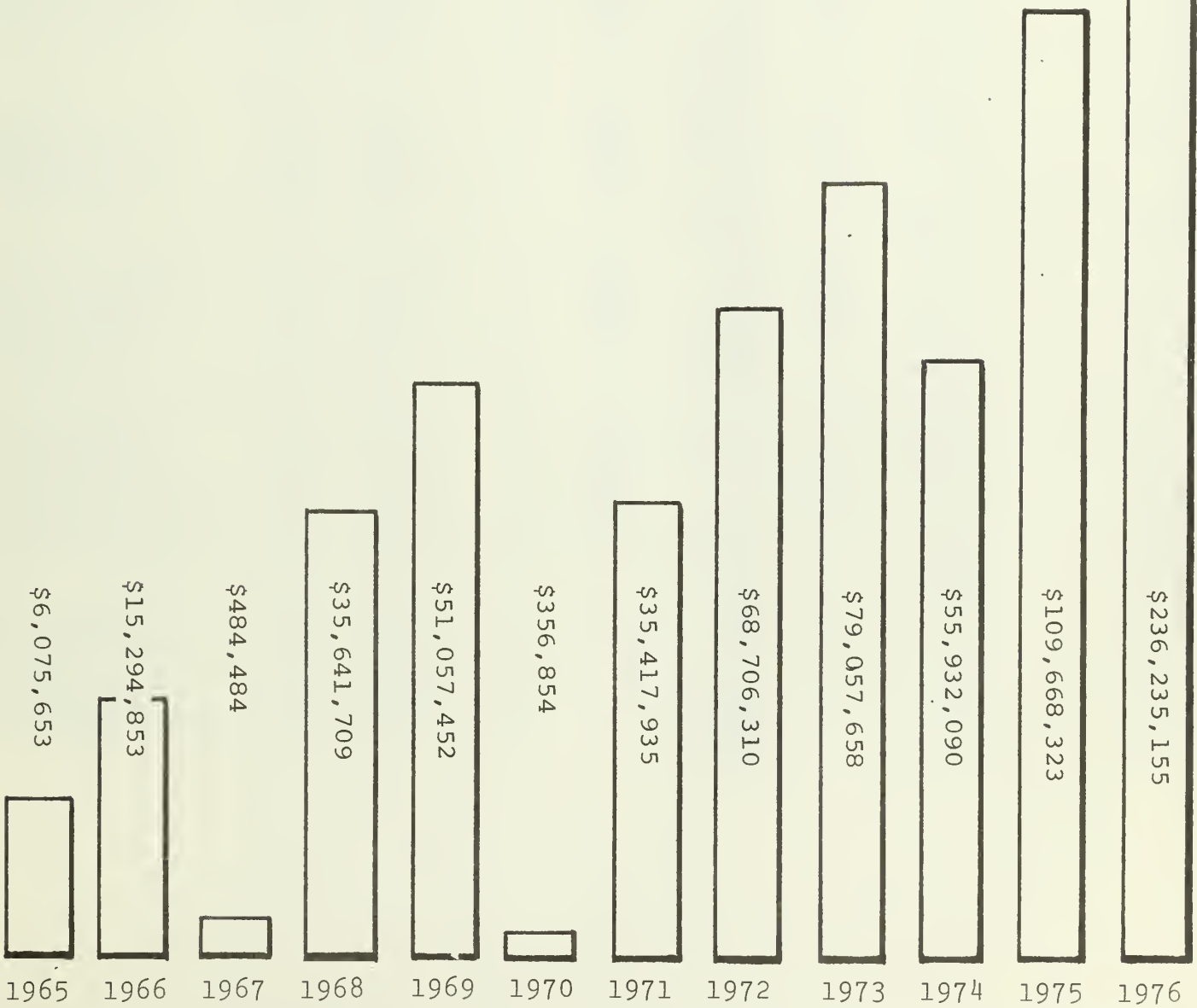
* Interstate Transfer Funds

** Section 5 Funds, Urban Mass Transportation Act of 1964, as amended

*** Boston & Maine Acquisition Loan

FEDERAL AID GRANTS AND LOANS

1965 _____ 1976



TOTAL : \$693,480,572

FEDERAL GRANTS and LOANS 1965 - 1976

FISCAL YEAR	PROJECT DESCRIPTION	DATE APPR.	FEDERAL PROJ.#	TYPE CODE	FEDERAL	SHARE	LOCAL	SHARE	INVESTMENT	
									INCOME	TOTAL
1965	19 Station Modernization	2-15-65	MA-03-0001**	(C)	66-2/3%	\$6,075,653.	33-1/3%	\$3,037,826.	\$2,441.	\$9,115,920.
1966	30 Bus Acquisition (150)	5-23-66	MA-03-0002**	(C)	66-2/3%	3,136,654.	33-1/3%	1,568,327.	-	4,704,981.
	11 Haymarket Tunnel	6-14-66	MA-03-0003**	(C)	66-2/3%	11,997,599.	33-1/3%	5,998,800.	3,601.	18,000,000.
						<u>15,134,253.</u>		<u>7,567,127.</u>	<u>3,601.</u>	<u>22,704,981.</u>
1967	11 Haymarket Soils Instru.	10-12-66	MA-06-0008**	(D)	66-2/3%	160,600.	33-1/3%	80,300.	74.	240,974.
	12 Southwest Corridor Stu.	6-21-67	MA-09-0001	(T)	66-2/3%	484,484.	33-1/3%	242,242.	-	726,726.
						<u>645,084.</u>		<u>322,542.</u>	<u>74.</u>	<u>967,700.</u>
1968	14 South Shore R/T	3-12-68	MA-03-0004	(C)	66-2/3%	34,469,333.	33-1/3%	17,234,667.	117,000.	51,821,000.
	14 South Shore R/T	3-12-68	MA-03-0004	(R)	100%	617,000.	-	-	-	617,000.
	Training Grant	1968	MTTR-2**	(M)	75%	19,976.	25%	6,658.	-	26,634.
						<u>35,106,309.</u>		<u>17,241,325.</u>	<u>117,000.</u>	<u>52,464,634.</u>
1969	11 Haymarket North	6-24-69	MA-03-0005	(C)	66-2/3%	50,862,000.	33-1/3%	25,431,000.	-	76,293,000.
	12 Southwest Corridor Amend.	12-16-68	MA-09-0001	(T)	66-2/3%	13,333.	33-1/3%	6,667.	-	20,000.
	17 Central Area Systems Stu.	9-7-68	MA-09-0002**	(T)	66-2/3%	522,067.	33-1/3%	261,034.	-	783,101.
	11 HN Soils Instru. Amend.	6-27-69	MA-06-0008**	(D)	66-2/3%	144,971.	33-1/3%	72,486.	-	217,457.
	Service Development	6-4-69	MASS-MTD-7**	(D)	81%	35,178.	19%	8,252.	-	43,430.
	Training Grant	1969	MTTR-3**	(M)	75%	15,303.	25%	5,102.	-	20,405.
						<u>51,592,852.</u>		<u>25,784,541.</u>		<u>77,377,393.</u>
1970	Training Grant	6-15-70	MTTR-4**	(M)	75%	10,238.	25%	3,412.	-	13,650.
1971	14 South Shore R/T Amend.	5-18-71	MA-03-0004	(C)	66-2/3%	3,657,263.	33-1/3%	1,828,832.	-	5,485,895.
	16 Cabot Maint. Center	5-18-71	MA-03-0007	(C)	66-2/3%	18,800,000.	33-1/3%	9,400,000.	-	28,200,000.
	21 System Wide Mod.	5-18-71	MA-03-0010	(C)	66-2/3%	3,000,000.	33-1/3%	1,500,000.	-	4,500,000.
	37 Bus Acquisition (310)	5-18-71	MA-03-0011	(C)	66-2/3%	8,100,250.	33-1/3%	4,050,125.	-	12,150,375.
	Validation Study	8-27-70	MASS-MTD-8	(D)	87%	346,616.	13%	51,422.	-	398,038.
	Validation Stu. Amend.	5-9-71	MASS-MTD-8	(D)	83%	35,100.	17%	7,296.	-	42,396.
	Training Grants	Various	MTTR-5-9**	(M)	75%	22,738.	25%	7,579.	-	30,317.
						<u>33,961,967.</u>		<u>16,845,054.</u>		<u>50,807,021.</u>
1972	38/52 Bos. Trans. Plan. Rev.	7-9-71	MA-09-0010	(T)	66-2/3%	1,693,500.	33-1/3%	846,750.	-	2,540,250.
	41 Light Rail Veh. Spec.	12-8-71	MA-06-0015**	(D)	84%	109,084.	16%	20,841.	-	129,925.
	16 Cabot Maint. Cent. Amend.	1-12-72	MA-03-0007	(C)	66-2/3%	320,000.	33-1/3%	160,000.	-	480,000.
	54 Sta. Mod. Phase II	5-19-72	MA-03-0013	(C)	66-2/3%	9,565,086.	33-1/3%	4,782,544.	-	14,347,630.
	53 Green Line Improvements	2-25-72	MA-03-0015	(C)	66-2/3%	25,413,333.	33-1/3%	12,706,667.	-	38,120,000.
	51 Non-Revenue Equipment	1-12-72	MA-03-0021	(C)	66-2/3%	568,940.	33-1/3%	284,470.	-	853,410.
	Training Grants	Various	MA-10-0010-13**	(M)	75%	20,621.	25%	6,875.	-	27,499.
						<u>37,690,567.</u>		<u>18,808,147.</u>		<u>56,498,714.</u>
1973	41 Light Rail Veh. Spec. Amend.	8-25-72	MA-06-0015**	(D)	72%	18,327.	28%	7,126.	-	25,453.
	55 Green Line Vehicles	10-20-72	MA-03-0022	(C)	66-2/3%	32,800,000.	33-1/3%	16,400,000.	-	49,200,000.
	56 Plant Impro. Phase I	1-2-73	MA-03-0017	(C)	66-2/3%	1,573,146.	33-1/3%	786,574.	-	2,359,720.
	58 Rapid Transit Cars (80)	6-18-73	MA-03-0024	(C)	66-2/3%	18,410,600.	33-1/3%	9,205,300.	-	27,615,900.
	57 Safety Improvements	6-18-73	MA-03-0025	(C)	66-2/3%	10,601,640.	33-1/3%	5,300,820.	-	15,902,460.
	59 Plant Impro. Phase II	6-18-73	MA-03-0026	(C)	66-2/3%	7,933,092.	33-1/3%	3,966,546.	-	11,899,638.
	60 Track. Trolleys (50) Phase II	6-18-73	MA-03-0028	(C)	66-2/3%	1,781,500.	33-1/3%	890,750.	-	2,672,250.
	11/62 Haymarket North Amend.	6-27-73	MA-03-0005	(C)	66-2/3%	13,126,410.	33-1/3%	6,563,206.	-	19,689,616.
	Penn Central Acquisition	1-26-73	MA-03-9001	(L)	100%	19,500,000.	-	-	-	19,500,000.
	Training Grants	Various	MA-10-0016-20**	(M)	75%	26,494.	25%	8,832.	-	35,326.
							<u>105,771,209.</u>		<u>43,129,156.</u>	
1974	61 Rest. Orange Line Str.	10-26-73	MA-03-0029	(C)	80%	4,456,872.	20%	1,114,218.	-	5,571,090.
	63 Transit Develop. Program	8-22-73	MA-09-0016	(T)	80%	1,200,000.	20%	300,000.	-	1,500,000.
	16 Cabot Supplemental	6-10-74	MA-03-0007	(C)	80%	5,424,476.	20%	1,356,119.	-	6,780,595.
	55 Green Line Veh. Amend.	6-10-74	MA-03-0022	(C)	80%	7,628,488.	20%	1,907,122.	-	9,535,610.
	60 Track. Trolley Amend.	6-28-74	MA-03-0028	(C)	80%	1,133,360.	20%	283,340.	-	1,416,700.
	11 Haymarket North Amend.	6-27-74	MA-03-0005	(C)	80%	1,000,000.	20%	250,000.	-	1,250,000.
	65 Unified Work Program	7-11-74	MA-29-9001	(T) (IT)	80%	10,000,000.	20%	2,500,000.	-	12,500,000.
	66 Power Improvements	7-11-74	MA-03-0019	(C)	80%	2,115,836.	20%	528,959.	-	2,644,795.
	67 Purchase of 125 New Buses	7-15-74	MA-03-0018	(C)	80%	5,496,800.	20%	1,374,125.	-	6,870,925.
	Training Grants	Various	MA-10-0021-22	(M)	75%	13,006.	25%	4,349.	-	17,355.
							<u>38,468,538.</u>		<u>9,618,232.</u>	

CAL AR	PROJECT DESCRIPTION	DATE APPR.	FEDERAL PROJ.#	TYPE CCODE	FEDERAL	SHARE	LOCAL	SHARE	INVESTMENT	
									INCOME	TOTAL
5	68 So. Shore R/T - Braintree	11- 1-74	MA-23-9001	(C) (IT)	80%	\$23,040,424.	20%	\$5,760,106.		\$28,800,530.
	01 Prepaid Transit Pass Program	10-25-74	MA-06-0059	(D)	100%	80,000.	-	-		80,000.
	70 Charlestown Bus Garage	2-12-75	MA-03-0016	(C)	80%	8,314,400.	20%	2,078,600.		10,393,000.
	71 Plant Impro. Phase III	2-12-75	MA-03-0031	(C)	80%	13,942,800.	20%	3,485,700.		17,428,500.
	72 Main. Productivity Study	5-22-75	MA-09-0026	(T)	80%	136,000.	20%	34,000.		170,000.
	73 Purchase & Mod. R/T Cars	7- 7-75	MA-23-9002	(C) (IT)	80%	42,688,360.	20%	10,672,090.		53,360,450.
	74 Immediate Needs Power	6-23-75	MA-03-0037	(C)	80%	10,394,400.	20%	2,598,600.		12,993,000.
	56 Plant Improv. Ph. I Amend.	7- 7-75	MA-03-0017	(C)	80%	5,723,068.	20%	1,430,767.		7,153,835.
	75 Service Bus Lines	7- 7-75	MA-03-0042	(C)	80%	204,480.	20%	51,120.		255,600.
	76 Rest. Track Support Stru.	7- 7-75	MA-03-0036	(C)	80%	2,526,256.	20%	631,564.		3,157,820.
	77 Commuter Rail Phase I	7- 7-75	MA-03-0040	(C)	80%	10,907,200.	20%	2,726,800.		13,634,000.
	78 Purchase 143 New Buses	7- 7-75	MA-03-0033	(C)	80%	7,987,396.	20%	1,996,849.		9,984,245.
	02 Validation Study Amendment	4-30-75	MA-06-0011	(D)	100%	68,000.	-	-		68,000.
	03 B & M Track Rehabilitation	7-31-75	013200117	(C)	62%	506,212.	38%	317,000.		823,212.
	79 MAPC Tech. Study	8-22-74	MA-09-0018	(T)***	-	-	100%	148,750.		148,750.
	Training Grants	Various	MA-10-0025-27	(M)	75%	18,602.	25%	6,203.		24,805.
						<u>126,537,598.</u>		<u>31,938,149.</u>		<u>158,475,747.</u>
6	Operating Asst.	11-18-75	MA-05-4003	(OA)	49%	6,241,114.	51%	6,531,258.		12,772,372.
	Training Grants	Various	MA-10-0028-29	(M)	75%	10,035.	25%	3,346.		13,381.
	53 Green Line Amend.	3-22-76	MA-03-0015	(C)	80%	9,256,368.	20%	2,314,092.		11,570,460.
	83 Midlands	4- 9-76	MA-23-9004	(C) (IT)	80%	12,800,000.	20%	3,200,000.		16,000,000.
	84 South Cove	4- 9-76	MA-23-9005	(C) (IT)	80%	26,950,400.	20%	6,737,600.		33,688,000.
	Operating Asst.	6-10-76	MA-05-4006	(OA)	9%	11,172,532.	91%	120,142,567.		131,315,099.
	86 So. Quincy R/T Sta.	7-21-76	MA-03-0049	(C)	80%	21,015,044.	20%	5,253,761.		26,268,805.
	66 Power Improvements	7-21-76	MA-03-0019	(C)	80%	12,518,560.	20%	3,129,640.		15,648,200.
	73 Purch. 190 R/T Cars	7-21-76	MA-23-9002	(C) (IT)	80%	18,418,920.	20%	4,604,730.		23,023,650.
	14 South Shore	7-21-76	MA-03-0004	(C)	80%	60,320.	20%	15,080.		75,400.
	11 Haymarket North	7-21-76	MA-03-0005	(C)	80%	2,918,244.	20%	729,561.		3,647,805.
	16 Cabot Maint. Ctr.	7-21-76	MA-03-0007	(C)	80%	551,712.	20%	137,928.		689,640.
	21 System-Wide Mod.	7-21-76	MA-03-0010-1	(C)	80%	162,204.	20%	40,551.		202,755.
	54 Sta. Mod. Phsse II	7-21-76	MA-03-0013	(C)	80%	216,004.	20%	54,001.		270,005.
	53 Green Line Improvements	7-21-76	MA-03-0015-02	(C)	80%	713,744.	20%	178,436.		892,180.
	67 Purch. 125 Buses	7-21-76	MA-03-0018-01	(C)	80%	48,968.	20%	12,242.		61,210.
	66 Power Improvements	7-21-76	MA-03-0019-02	(C)	80%	42,320.	20%	10,580.		52,900.
	55 Green Line Vehicle	7-21-76	MA-03-0022-02	(C)	80%	884,740.	20%	221,185.		1,105,925.
	57 Safety Impr.	7-21-76	MA-03-0025-01	(C)	80%	220,176.	20%	55,044.		275,220.
	59 Plant Improv. Phase II	7-21-76	MA-03-0026-01	(C)	80%	370,728.	20%	92,682.		463,410.
	60 Track. Trolley 50	7-21-76	MA-03-0028-02	(C)	80%	57,908.	20%	14,477.		72,385.
	61 Rest. Orange Line	7-21-76	MA-03-0029-01	(C)	80%	204,520.	20%	51,130.		255,650.
	70 Charlestown Bus Garage	10- 6-76	MA-03-0016	(C)	80%	13,202,100.	20%	3,300,525.		16,502,625.
	65 Unified Work Program	10- 6-76	MA-29-9001-1	(T) (IT)	80%	3,000,000.	20%	750,000.		3,750,000.
	87 B & M Loan CRIP II	10- 6-76	MA-23-9010	(L)	100%	24,172,750.	-	-		24,172,750.
	88 CRIP Phase II	10- 6-76	MA-23-9006	(C) (IT)	80%	46,308,960.	20%	11,577,240.		57,886,200.
	64 Mod. 88 Red Line Cars	10- 6-76	MA-23-9009	(C) (IT)	80%	14,099,368.	20%	3,524,842.		17,624,210.
						<u>\$225,617,739.</u>		<u>\$172,682,498.</u>		<u>\$398,300,237.</u>
			GRAND TOTAL			<u>\$676,612,007.</u>		<u>\$346,978,009.</u>	<u>\$123,116.</u>	<u>\$1,023,713,132.</u>

TYPE CODE

(C) Capital (R) Relocation
 (D) Demonstration (T) Technical
 (L) Loan (IT) Interstate Transfer
 (M) Managerial (OA) Operating Assistance

**Completed Grants
 ***MBTA participating in MAPC Tech. Study Grant up to \$148,750.

COMMUNITY AFFAIRS AND MARKETING DIRECTORATE

Community Affairs and Marketing contributes to the Authority's goal of increased ridership through its marketing and promotion, service planning, customer service, community affairs, and pass sales activities. These functions are carried out on the basis of a strategy designed to improve the awareness of present and potential riders of their service options; to stimulate a change in public attitudes toward public transportation generally; to influence, as attitudes change over the long term, the travel behavior of potential riders so as to encourage MBTA use; and to follow up with programs to insure that new riders, once attracted, remain committed to the MBTA.

The directorate is organized into four units engaged in customer services, marketing, service planning, and Pass program management. The Customer Services Unit responds to complaints and requests for information, either directly or by referring callers to the appropriate Authority official. Each month this unit services thousands of telephone calls which request maps and brochures, offer suggestions and register complaints. With this responsibility, the Customer Service Unit, along with the thousands of Transportation operating personnel, are the MBTA's direct link to its customers.

A successful innovation in 1976 by the Marketing Unit, in conjunction with the Report Production section of the Treasurer's Office and the Office of Public Information, has been the rapid production and distribution of flyers informing the riding public of service disruptions, emergencies, or any other unusual occurrence on the MBTA. These flyers have alerted people to reasons why their travel plans ought to be changed or have explained, after the fact, the cause of a significant service disruption. For example, when a rectifier failure early in 1976 caused a service disruption on the Blue Line, a series of flyers was prepared and distributed to thousands of Blue Line riders explaining the cause of the failure and the status of repairs. From comments the Authority has received, this kind of service bulletin has been welcome. Besides this informational material, the Authority's standard promotional maps, brochures, and timetables have been improved upon and distributed much more widely and in a more timely manner than in the past.

The Service Planning unit, still in its formative stage in 1976, has provided major support for the Authority's implementation of the Surface Service Policy which was approved and adopted in December 1975. The unit has solicited community suggestions for service changes and additions and has responded by developing route profiles, analyzing present and potential ridership data and by generally staffing the review and deliberations of the Authority's Service Policy Committee. Additionally, this unit played a key role

in the series of seven public service forums, held in each major transportation corridor throughout 1976, at which the public was invited to make directly to MBTA top management their comments, suggestions and criticisms concerning the service being provided the 79 cities and towns. Finally, Service Planning has been responsible for monitoring and evaluating the new program of experimental local transportation service in individual communities such as Bedford, Natick and Needham.

Under the policy guidance of the Authority's Pass Program Management Committee, the Pass Program manager and his staff market a service which is available to employees of participating corporations, public agencies and not-for-profit institutions. Under this program, employees can purchase a monthly Pass, the cost of which is automatically deducted by the employer and remitted by check to the MBTA. Employees enjoy the convenience of "cashless" commuting at a slight discount and are encouraged, through the unlimited travel provisions of the Pass, to increase their riding on the MBTA during off-peak daytime hours, nights and weekends. More riders at these non-peak hours mean more safety on the MBTA, and greater perception of safety on the MBTA. Surveys have indicated that one of the major impediments to increased ridership is people's perception that the MBTA is unsafe at non-peak hours because of the relatively small number of other riders on the system. The Pass is part of a strategy to counter that perception. Employers appreciate this program for the opportunity to provide their employees with a service, and to demonstrate their cooperation with the U.S. Environmental Protection Agency's Transportation Control plan. On July 1 of this year, the Authority introduced a significantly altered Pass Program. The Pass is now issued monthly, which provides Pass customers with the option of dropping out of the program during the month they take their vacation. The monthly program has eliminated the old system of free replacement of lost or stolen permanent Passes, a system which was distributing without charge new Passes worth about \$400,000 a year at a considerable administrative cost. The Pass is now available to employers who have five or more participating employees. The cost was increased about 8.6% in order to compensate for the anticipated loss of the employee's vacation month. The selection of Passes was increased to permit increased use for suburban locations, and to permit riders of the MBTA's premium service, the express buses, the option of commuting at a discount.

Results to date for the new program are mixed. The number of participating employers has doubled, internal operations dealing with the Pass are conducted much more smoothly, and joint MBTA-employer meetings have resolved most of the administrative irritants which affect employers. However, after six months' experience with the new program, sales remain below the June level of approximately 16,000. The two principal reasons for this disappointing record are first, for the careful consumer, the program's price structure discourages many people from committing one month's travel expense in advance. Second, the specific passes offered were, in some cases, inflexible in terms of the services available. The Authority will announce changes which will address directly these two shortcomings.

During 1976, the Police Department achieved a 38 percent reduction in transit crimes compared to 1975. This was accomplished by the effective deployment of uniformed officers to the most heavily patronized stations and the assignment of plainclothes officers to investigatory and surveillance activities in known high crime areas.

While various crime categories showed reductions from 1975, one category showed an increase. The crime involved the throwing of missiles at buses. In 1976, there were 567 incidents compared to 336 in 1975, for an increase in this crime of 41 percent.

The statistics for other crime categories are shown in the following comparative chart:

<u>CRIME</u>	<u>1975</u>	<u>1976</u>	<u>Net Change</u>
Assault & Battery	307	240	-21%
Sex Offenses	41	33	-20%
Armed & Unarmed Robbery	340	292	-15%
Larceny & Missing Property	2,453	1,372	-44%
Totals	3,141	1,937	-38%

On April 9, 1976, the Police Department moved to the Cabot Transportation Center in South Boston, thus centralizing operations that were previously conducted at 45 High Street and at Dudley Station.

Other accomplishments during the year were:

--Establishment of liaison with the State Police for the purpose of developing a reporting and recording system based on statewide standards and specifications.

--Implementation of the first phase of a criminal identification program to provide the department, victims and/or witnesses with immediate access to photo identification of persons known to be involved in criminal activity on the transit system.

--Development of an anti-vandalism program that is available to local community organizations.

--Continuation of efforts to seek State and Federal funding in order to broaden the department's scope of activities in crime prevention.

The Police Department was reorganized to strengthen command and patrol supervision. Authorized manpower is 64, consisting of:

	<u>NUMBER</u>	<u>PERCENT</u>
Administration	3	4.7%
Supervision	7	11.0%
Station Patrol	31	48.4%
Car Patrol	14	21.9%
Plainclothesmen	6	9.4%
K-9 Force	2	3.1%
Prosecutor	1	1.5%
	<u>64</u>	<u>100.00%</u>

Their efforts are allocated to public protection (77%), facility patrol (16%), and internal security (7%). This manpower distribution includes one new lieutenant and one new sergeant. The department operates on five shifts, including two rotating squads which alternate on a weekly basis between the day and night shifts. Establishment of these shifts provides increased flexibility in patrol staffing, resulting in more efficient manpower deployment during high ridership hours.

OFFICE OF SAFETY

The Office of Safety's responsibility is to provide staff assistance to the Chief Executive Officer on safety matters. This assistance will take the form of identifying major safety problems in the Authority; insuring that pertinent information reaches the Chief Executive Officer in a form that facilitates decision-making; recommending new safety programs to the Chief Executive Officer; and coordinating safety programs, which have the firm commitment of support from top management.

During 1976, the former Safety and Training Department was reorganized. Training functions were transferred to the Transportation Department. The Safety functions were consolidated into an Officer of Safety. The reorganized Office of Safety, headed by a Manager of Safety, consists of fifteen people. The office functions are divided into a Programs and Procedure Section and a Records and Reports Section.

The Programs and Procedures Section's responsibilities are to devise and oversee the Authority's safety programs. Several hazard reduction and accident prevention programs in operation include: programs designed to reinforce safe driving through the use of nominal rewards and individual recognition; a prevention program that identifies locations of frequent traffic accidents and reminds drivers on the affected runs of the dangers; a preventive program aimed at industrial accidents which seeks to identify and remove causes of recurring accidents; the purchase of protective equipment and clothing; and presentation of safety films and slides.

The Records and Reports Section investigates all rapid transit, streetcar, trackless trolley, and bus accidents as well as industrial accidents (for example, accidents which occur in the MBTA carhouses and repair shops); conducts safety inspections of work sites; analyzes the safety records of individual drivers; and reports on traffic and passenger accidents to the Federal Railway Administration and to the American Public Transit Association.

In 1976, there was a 14.1 percent reduction in passenger and vehicular accidents involving buses, streetcars and trackless trolleys, and a 17.4 percent decrease over the prior three-year average. Passenger injuries were reduced 9.2 percent on the surface vehicles. On the rapid transit lines, injuries to passengers aboard trains dropped nine percent and injuries to passengers at stations (on stairways, escalators, etc.) dropped two percent.

Industrial accidents decreased from 2,179 in 1975 to 2,077 in 1976. This 4.7 percent reduction in the number of accidents represents a substantial savings in man-hours lost -- 160,139 in 1976, down from 222,526 in 1975 for a net savings in lost time of 62,387 man-hours or 28 percent.

PERSONNEL DIRECTORATE

The Personnel Directorate provides staff support and services to all ① departments on matters of employee compensation, performance, recruitment and promotion, absences, and affirmative action. The directorate's services include staff assistance, guidance and counseling on personnel and labor relations matters; negotiation and administration of labor contracts; screening, recruiting, examination and selection of candidates for employment, including physical examinations for present and prospective employees; design of employee training and development programs; counseling for alcoholism, drug abuse and other behavioral problems; maintenance of personnel records; and the development and implementation of an aggressive affirmative action program.

The directorate is structured into four sections, each of which is headed by a manager who reports to the Director of Personnel. The four sections are: Personnel; Employment, Workmen's Compensation and Medical Services; Labor Relations; and Equal Employment Opportunity.

This was a contract year for all unions representing MBTA employees except for the MBTA Patrolmen's Association. Bargaining was first concluded with the largest union, Local 589 (Carmen's Union), which represents approximately 3,900 employees. Negotiations with Local 589 were referred to arbitration, and the arbitrator's award was made on May 19, 1976. As in the past, agreement with Local 589 set the pattern for agreement with the balance of the bargaining units.

The provisions of the arbitration award to Local 589 provide for no across-the-board increase in base wages for the 2-year contract period, or from January 1, 1976 to December 31, 1977. The award also provided for a suspension, until January 1, 1977, of cost-of-living payments which would have been payable June 1, September 1 and December 1, 1976. The cost-of-living payment scheduled for March 1, 1976 was ordered paid. Although the Authority sought elimination of the no-layoff clause, this provision was renewed.

The two-year freeze on across-the-board wage increases represents a substantial savings to the Authority and to the taxpayer. Each one percent increase per year added to the wage base would have cost \$4,000,000 over the contract period.

The suspension of cost-of-living payments reduced 1976 expenses by approximately \$1,500,000. On January 1, 1977, hourly wage rates paid to members of Local 589 will be adjusted to incorporate the rise in cost-of-living which occurred between February and November 1976.

In addition, the Authority proposed several changes in work practices to reduce costs and increase productivity. First, the interval between "system picks" (the opportunity of a senior member of one department to bid on a vacancy in another department) was lengthened from one year to two years for Surface Lines personnel. This change will reduce the training costs borne by the Authority to prepare personnel for new positions. Second, the Authority won the right to change the hours of junior employees in the Rail Equipment Department to cover temporary vacancies. This change will reduce overtime costs. Third, the Authority was granted the right to establish and fill the job classification of carhouse repairman specialist in the Rail Equipment Department, based on improved qualifications testing. The new classification is a central component in the Authority's development of a maintenance program for the LRV's. Fourth, compressor

operators will in the future work on the track maintenance and repair gang when they are not actually operating the compressor.

During the past year, the Personnel section has evaluated every vacant position as the vacancy occurred, to determine whether it should be retained. This process has contributed to the Authority's reduction in permanent and temporary operating personnel from 6,369 at the end of 1975 to 6,019 by the end of 1976. An additional 233 employees are paid from the federally-aided capital budget.

An affirmative action program for the hiring of minorities and women by the Authority and its contractors was approved November 10 by the MBTA Board of Directors. A specific objective of the affirmative action program is to employ systematic efforts to fill all vacancies with at least 50 percent minorities and 20 percent women, with the intention to arrive at a 20 percent minority employment level by December 31, 1978. The plan formalizes the hiring practices the Authority has used over the last year--that wherever possible, the MBTA has used a 50% minority hiring posture and sought to increase female representation. Another key goal of the program is that "15 to 25 percent of each prime contract, as measured by total contract price, shall be performed by minority contractors to the extent feasible." The MBTA has plans for construction worth more than \$1 billion over the next decade.

A significant step toward an improved performance evaluation process was taken this year with the development of a new managerial performance evaluation form. The form requires evaluation of each management employee in terms of quantity and quality of work. The summary rating is keyed directly to compensation review and discussion of improvements needed.

OFFICE OF THE TREASURER-CONTROLLER

The Treasurer-Controller is responsible for general supervision of funds, investments and accounts of the Authority; federal and general accounting and auditing systems; negotiation of concession and advertising contracts; and the development and operation of the Authority's data processing systems.

The Treasurer-Controller's Office consists of five sections: Financial Management, Revenue Collection, Accounting, Federal Accounting and Auditing, and Data Processing. Each section is supervised by a Manager.

The Financial Management section controls the receipt of all bond proceeds and programs the investment of these non-operating funds and all operating revenues. It is also responsible for all insurance matters, concessions and advertising contracts, and mailing of all checks.

The Revenue Collection section collects more than \$1 million per week in fare revenue from locations throughout the Authority, counts these funds and deposits them to the Authority's bank account.

The Accounting section audits and prepares for payment the payroll (approximately 6,000 weekly checks and 375 bi-weekly checks) and all vouchers (approximately 100,000 invoices annually); prepares all accounting procedures, statements and monthly reports; audits and reports on transportation revenue; calculates the assessment of the net cost of service to the cities and towns; and supplies report production and stenographic services to all Authority departments.

The Federal Accounting and Auditing section is responsible for meeting Federal financial control and reporting requirements. These requirements are met through audits of all third party contracts; monitoring of Federal construction grants; and preparation and submission to UMTA of all financial statements and cash requisitions pertaining to UMTA grants.

The Data Processing section is responsible for the operation of the Authority's data processing systems, and for the development and programming of new systems. This section routinely handles the following functions: payroll, accounts payable, Blue Cross-Blue Shield, service costs systems, inventory, purchasing, receiving, vehicle maintenance, responsibility accounting, safety reports, timetable scheduling, and capital accounting.

In response to the large number of UMTA grants and the requirements of UMTA regulations, the Internal Auditing section has been reorganized. Two additional staff have been assigned and the entire section has been re-directed to audit of third party contracts, which are those contracts the MBTA enters into with UMTA participation. This reorganization has substantially increased audit capability.

Development of the unit property identification records system for non-expendable capital assets has proceeded. Upon completion, this system will provide each manager with a monthly inventory of all non-expendable property under his control. With such an up-to-date inventory, reductions in losses from theft, vandalism and misuse are expected.

MATERIALS DIRECTORATE

The primary function of this directorate is to purchase, receive, store and distribute materials in such quantities as are necessary for the successful operation of the various departments throughout the Authority.

The department is organized into five sections, all reporting to the Director of Materials. The sections are: Purchasing, Purchasing Analysis, Central Stores, Inventory Control, and Building Services.

The Director of Materials develops and recommends to the Chairman specific material policies and plans, and implements approved policies and plans through the establishment of sound material control practices and procedures. The Director also negotiates major purchases and, in his capacity as Program Director, develops, executes, reviews and analyzes the Material Program.

The Purchasing Section purchases major items at minimum cost, consistent with stringent quality and delivery standards. In addition, it secures quotations from qualified suppliers and reviews them for purposes of establishing the lowest responsible bidders. The Purchasing Section also expedites material orders and arranges for the sale of scrap and obsolete materials.

The Purchasing Analysis Section develops, establishes and administers purchasing analysis and evaluation techniques aimed at purchasing materials and services to functional specifications at the lowest possible cost, highest quality and reliability, and shortest delivery cycle.

The Central Stores Section has two main storerooms at Everett and Charlestown, plus a satellite storeroom at the Riverside complex. The storerooms receive, shelve, dispense and account for all materials ordered by the Authority. The Inventory Control Section administers and controls the material inventory. It assigns serial numbers to new items of material and suggests substitutes if other stock items are unavailable. It spot checks the inventory on a periodic basis to assure accuracy and control. The Building Services Section is responsible for the janitorial and groundskeeping function at the Arborway Administration Building. Other major responsibilities include telephone service at High Street, messenger service at Arborway and the receipt and distribution of materials and supplies for the Administration Building.

In the past year, the department obtained bid proposals and placed contracts for the purchase of 128 new diesel transit buses. It also managed delivery and acceptance of fifty new trackless trolleys. It continued the processing and procurement of approximately 150 Capital Equipment items approved in the Phase II and Phase III Plant Improvement Programs. Also, the department processed and procured Capital items in conjunction with the Green Line Construction Project and other approved projects, and obtained bid proposals and placed contracts for the purchase of new rapid transit cars for the Orange and Blue Lines.

OFFICE OF THE GENERAL COUNSEL

The Office of the General Counsel provides legal services to other departments and to the Chairman and the Board of Directors. It handles the legal aspects of the Authority's relationships with federal, state and local governments and with private business.

The principal activity within the General Counsel's Office is the management of injury and damage suits in which the MBTA is a party. These suits result from motor vehicle accidents, accidents on the Authority's property, and similar other occurrences. Two-thirds of the General Counsel's staff is devoted to this purpose in such capacities as investigators, adjusters, legal aides, trial attorneys, and clerical personnel.

Another major activity is work related to land damage suits resulting from land takings, right-of-way and eminent domain proceedings. Five persons are engaged in this function.

Other functions are performed by the Railroad Labor Section, the Legislative Section, the Contract Preparation Section and the Hearing Officer Section.

One of the major objectives in 1976 was to divest itself of "quasi-legal" functions. The Workmen's Compensation Section was transferred to the Personnel Department and accident investigators were placed in Safety. These moves enabled the department to concentrate its efforts in greater detail on purely legal matters. In 1976, the General Counsel's Office was extensively involved in disputes arising from the provisions of Section 13(c) of the Urban Mass Transportation Act; negotiations dealing with the acquisition of the B & M lines and equipment, which were formally transferred to the MBTA on December 27, 1976; review of contracts and change orders necessary to the Authority's operating and construction activities; and preparation of new and renewed leases and concession contracts.

1976 LEGISLATION

The following Acts passed by the General Court in 1976 affect the Authority:

- Chapter 4 - An Act to restructure the short-term debt of the Commonwealth and certain agencies and authorities thereof.
(Amends Chapter 161A in regard to the MBTA's debt structure.)

- Chapter 251 - An Act authorizing the Board of Directors of the MBTA to designate one or more members of said Board to hear certain matters relating to the employment and compensation of police officers of the Authority.

- Chapter 256 - An Act providing penalties for the fraudulent use of passes on facilities of the MBTA.
- Chapter 283 - 1977 State Budget
(Contains contract assistance for MBTA and outside rail communities.)
- Chapter 298 - An Act authorizing and directing the University of Massachusetts to convey a certain parcel of land in the City of Boston to the United States of America for the John Fitzgerald Kennedy Library and authorizing and directing the Metropolitan District Commission to establish a John Fitzgerald Kennedy Park in the City of Cambridge and for other purposes.
(Provides for moving of certain MBTA facilities at Harvard Square).
- Chapter 370 - An Act authorizing the Town of Andover to pay a sum of money to the MBTA.
- Chapter 439 - An Act prohibiting the MBTA from locating a mass transportation facility within a certain distance of Arlington Catholic High School.

The following bills were filed by the Authority for legislative action in 1977:

1. An Act relative to the financing of the MBTA.

This proposal provides 50 percent contract assistance for MBTA net cost of service and 100 percent for the Authority's net additional expense of providing commuter rail service to outside communities. This is a permanent proposal.

2. An Act relative to the reimbursement of fuel and special fuel excises to those providing mass transportation services.

Adoption of this proposal would provide 100 percent reimbursement for fuel excises not currently reimbursed.

3. An Act authorizing the MBTA to lease air rights over its transportation facilities.

This legislation would allow the Authority to lease air rights for a period up to 99 years. Provision is made in the bill for the payment of taxes or a sum of money in lieu of taxes. It also provides that local laws and regulations shall apply.

4. An Act relative to the transfer of all vehicular bridges carrying public ways over the tracks or rights of way of railroads within the Commonwealth.

This proposal provides that the Massachusetts Department of Public Works take over certain vehicular bridges owned by the MBTA. Legislation previously enacted provided that the M.D.P.W. take over care and control of railroad bridges.

5. An Act authorizing the MBTA to make entry on private land for the purpose of surveys, soundings and drillings.

This would allow the Authority to enter upon private property prior to construction to make certain tests and surveys. The bill provides reimbursement for any damage done.

6. An Act relative to compliance with federal law, regulation and practice by the MBTA.

Section 29 of Chapter 161A directs the Authority to obtain federal funds. The third sentence of Section 29 provides in essence that federal law, regulations and practices governing federal assistance shall override any inconsistent provisions of Chapter 161A. This proposal would include all laws relating to the MBTA.

7. An Act amending the law relative to the evasion of payment of fare.

This would amend the existing statute in order to clarify the right of arrest by including the word "station". The fine is also increased to a minimum of \$50. and a maximum of \$100.

8. An Act providing scholarships to children of MBTA police officers who are killed or die in the performance of duty.

There is present provision in the law for scholarships to be granted to the children of permanent police officers. Most agencies are specifically named, the MBTA is not. This proposal would eliminate any question of doubt that MBTA police are included in the law providing scholarships to children of police officers who die in the line of duty.

9. An Act authorizing and directing the Metropolitan District Commission to convey certain parcels of land in the Cities of Somerville and Medford to the MBTA and to grant permanent surface and subsurface easements for drainage purposes along the Boston & Maine Railroad right-of-way in these two cities.

This legislation is necessary in order to comply with the agreement between the MDC and the MBTA dated December 8, 1972.

10. An Act further regulating smoking in public conveyances.

The present statute passed in 1968 contains language providing that one must be requested to cease smoking. This had led to many confrontations between an alleged offender and the police. This legislation deletes the language requiring that a person must be requested to cease smoking.

11. An Act repealing the law relative to the payment of extra fares on railroad trains.

An existing 1906 statute provides that a 10¢ refundable surcharge may be levied upon those obtaining tickets from a conductor on a train instead of at the ticket office. Repeal would allow carriers to set policy.

12. An Act amending the law relative to temporary borrowing by the MBTA.

This would permit the State Treasurer to advance current expense funds to the Authority. The present method requires the Authority to certify to the State Treasurer an amount which does not exceed the estimated net cost of service to date.

13. An Act relative to arbitration procedures between employee organizations and the Board of Directors of the MBTA.

This legislation would provide guidelines for arbitration and procedures. An important part of this proposal is the inclusion of certain factors that must be considered in making a determination.

14. An Act prohibiting the charging of tolls for MBTA vehicles.

This proposal allows the Authority's vehicles to travel on the Turnpike without paying tolls. Under Chapter 161A, Section 18, the Authority is exempt from such tolls so far as constitutionally possible.

15. An Act relative to the use of roads and boulevards under the jurisdiction of the Metropolitan District Commission.

This proposal attempts to give the Authority the ability to use roads under the jurisdiction of the MDC which are now restricted.

16. An Act requiring notice to the MBTA relative to road and highway repairs, construction and reconstruction.

This proposal would require notice to the Authority where repairs or work is to be done on streets used by the Authority. This is to avoid possible disruption of service.

WHERE THE RIDERS ARE

Revenue from transportation--quarters, nickels and dimes--pays for approximately one-fourth of the cost of the public transportation network known as the MBTA.

The tables below show the revenue from the various types of transportation on the surface and on the rapid transit subway system. The streetcar and bus revenue figures from each "rating station"--the garage where bus and streetcar operators pick their route on the basis of their seniority rating--gives a further breakdown of where people use public transportation.

Revenue from Transportation, 1976

Rapid Transit

Orange Line (Malden-Forest Hills)	\$ 6,087,366
Blue Line (Bowdoin-Wonderland)	1,538,550
Red Line (Harvard-Ashmont)	5,794,095
Red Line (South Shore Extension to Quincy)	2,745,652
Green Line Central Subway (Kenmore-Iechmere)	6,296,546
<u>Total Rapid Transit Lines</u>	<u>\$22,462,209</u>

Surface Lines

Streetcar (Green Line: Riverside, Peacon, Commonwealth, Arborway; Mattapan-Ashmont)	\$ 5,813,483
Trackless Trolley (Cambridge, Belmont, Watertown)	1,321,244
Bus (194 Routes)	23,295,885
<u>Total Surface Lines</u>	<u>\$30,430,612</u>

Chartered Bus

	\$ 229,494
<u>TOTAL TRANSPORTATION REVENUE</u>	<u>\$53,122,315</u>

Streetcar Revenue, 1976 by Rating Stations

Reservoir (Green Line: Beacon and Commonwealth)	\$2,925,364
Riverside (Green Line)	1,425,019
Arborway (Green Line)	1,431,441
Mattapan-Ashmont	31,659
<u>TOTAL STREETCAR REVENUE</u>	<u>\$5,813,483</u>

Bus Revenue, 1976 by Rating Stations

Cabot-Albany, Boston	\$7,436,629
Arborway, Boston	3,320,675
Somerville and Arlington Heights	3,291,984
Salem Street, Medford; Charlestown; Eagle Street, East Boston	5,537,502
Lynn	1,700,175
Quincy	1,834,861
Tewksbury	174,059
<u>TOTAL BUS REVENUE</u>	<u>\$23,295,885</u>

Revenue to Commuter Railroads

Boston & Maine	\$ 4,850,000
Penn Central/Conrail	2,300,000
<u>Total Commuter Railroads</u>	<u>\$ 7,150,000</u>

PUBLIC TRANSPORTATION DEFICIT: A BRIEF HISTORY

Since 1918, it has been public policy in Massachusetts that the transportation network in Greater Boston is a public service of such benefit to individuals, businesses and government that the public through taxation pays the difference between the income and the expenses of operating the service.

That tradition began July 1, 1918 when five public trustees began operating the Boston Elevated Railway under the lease conditions of the Public Control Act which was passed May 22, 1918. This was six years after the Boston Elevated Railway Co. reported its first deficit of \$492,000 in 1912. In 1913, the company lost \$496,000. It made small surpluses in 1914, 1915 and 1916, but in 1917 it lost \$118,000. In the first half of 1918, when it was still under private control, losses amounted to \$572,000. But maintenance of the plant had been deferred as the company awaited public takeover. Consequently a large public investment had to be made and the deficit for the first 12 months of public control was \$3.1 million.

In 50 of the 58 years since 1918, public transportation has incurred a deficit. The eight years of surplus were 1922, 1923, 1925, 1927, 1928, 1929, 1942 and 1943. The surplus was never more than \$1.9 million. The Metropolitan Transit Authority, which ran the system from 1948 through August 3, 1964, had deficits ranging from \$2.8 million to \$21 million.

Since 1957, the last year that income exceeded the cost of wages and fringe benefits alone, these two major expense categories have increased 295 percent whereas income increased only 57 percent. In 1976, wages and fringe benefits cost more than twice the amount of transportation revenues while other operating expenses, such as materials and fuels, cost more than one-half of the transportation revenues received.

The source of public support for public transit, however, continues to grow. The Federal Government is now providing operating assistance under the Urban Mass Transportation Assistance Act of 1974. The allocations to the MBTA are as follows: for the 1975 federal fiscal year, \$6,532,254; 1976 fiscal year, \$10,887,090; Transition Quarter, \$2,720,900; 1977 fiscal year, \$14,148,600; fiscal 1978, \$16,869,500; fiscal year 1979, \$18,502,000; and fiscal year 1980, \$16,869,500. As of December 31, 1976, the Authority had received a total of \$34,282,211. This Federal aid, combined with continuing state and local aid maintains the tradition of public support for public transportation in the Boston area. Otherwise, because total expenses are four times greater than the revenue from fareboxes, a passenger now paying 25 cents a ride would have to pay one dollar a ride. Needless to say, at one dollar a ride, ridership on the MBTA which carries about 60 percent of the rush hour commuters, would plummet with severe adverse effects on the development of Greater Boston.

MBTA ASSESSMENT PROCEDURES

A question frequently heard from our customers is "how is my town's MBTA assessment determined?" All 79 cities and towns in the MBTA district pay a share of the MBTA's yearly deficit or net cost of service. The assessment formulas for sharing the deficit were originally spelled out in state legislation passed in 1964 when the old MTA district, serving 14 cities and towns, was enlarged to the present regional transportation district and renamed the MBTA. The formulas have been amended by the legislature from time to time in an effort to make the assessment more fair and equitable.

The legislation defines two basic types of MBTA service, "express service" and "local service". Express service refers to rapid transit service on controlled rights of way, while local service refers to MBTA buses, trackless trolleys and streetcars in local streets. The net cost of providing each of these types of service is calculated separately and allocated by a different formula.

type of service	portion of deficit	who pays	basis for assessment
EXPRESS	75%	all 79 cities & towns	number of commuters
	25%	cities & towns with rapid transit & R.R.	boarding counts (except new stations)
LOCAL	50%	65 cities & towns	population (1970)
		14 cities & towns	
	50%	cities & towns with bus service	share of losses sustained locally

Express Service. Legislation has divided the assessment for the cost of express service into two parts, a 75% portion, and a 25% portion, each distributed in a different fashion.

The 75% portion of the net cost of express service is shared by all 79 cities and towns in the MBTA, based on the number of "commuters" living in each municipality. The number of commuters in each city and town was determined by a special study in 1963 and included all people who traveled outside their town to their place of work, whether they used public transportation or not. In the case of the City of Boston, the number of commuters was established so that Boston would be responsible for not less than 30% of this 75% portion.

The remaining 25% of the net cost of express service is shared only by those cities and towns that have one or more express service stations. This part of the assessment is proportional to the number of passengers boarding the rapid transit lines at stations in each community. Each year counts are taken to determine the

COMPREHENSIVE PROGRAM FOR MASS TRANSPORTATION

The Executive Office of Transportation and Construction has been responsible for the Comprehensive Program for Mass Transportation since January 1, 1975, in accordance with Chapter 161A, Section 5(g) and (h), of the General Laws of the Commonwealth as amended by Section 7 of Chapter 1140, Acts of 1973.

The statute states that the Authority's capital investment program and plans for mass transportation "shall be developed in consultation and cooperation with the Authority, and in consultation with the Executive Office of Communities and Development, the Metropolitan Area Planning Council, and such other agencies of the Commonwealth or of the Federal Government as may be concerned with said program and plans." The program and any revisions are subject to the approval of the Advisory Board.

The program must include a long-range plan for the construction, reconstruction, or alteration of mass transportation facilities within the Authority's district; a schedule for the implementation of the program, and comprehensive financial estimates of cost and revenues.

In 1976, the Executive Office of Transportation and Construction prepared a draft Ten-Year Program for Mass Transportation and its technical supplement. During the year, 10 public workshops on the draft program were held by the Advisory Board's Transit Development Committee. Approval of the program by the full membership of the Advisory Board will be sought in 1977.


The new Ten-Year Program will be the first comprehensive revision of the Program for Mass Transportation that was approved in 1966 and modified in 1971.

The balance sheet and statement of long-term debt of the Massachusetts Bay Transportation Authority as of December 31, 1976, and the related statements of revenue and cost of service, unreimbursed cost of service, and source of disposition of funds for the fiscal year ended December 31, 1976, together with notes relating to these financial statements, are appended to this report.

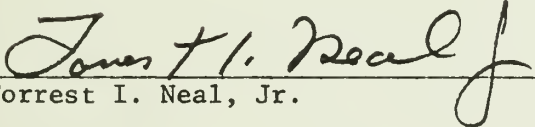
Respectfully submitted,

Board of Directors

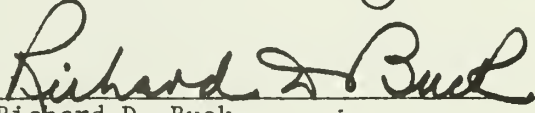
Massachusetts Bay Transportation Authority




Robert R. Kiley, Chairman




Forrest I. Neal, Jr.



Richard D. Buck



John J. McCarthy



Guido R. Perera, Jr.

PART II

FINANCIAL STATEMENTS

DECEMBER 31, 1976 AND 1975

The Authority's financial statements were audited by Arthur Andersen & Co., independent public accountants, and their report is included with the following financial statements:

- Balance Sheet - December 31, 1976 and 1975
- Statement of Revenue and Cost of Service for the Years Ended December 31, 1976 and 1975
- Statement of Unreimbursed Cost of Service for the Years Ended December 31, 1976 and 1975
- Statement of Changes in Financial Position for the Years Ended December 31, 1976 and 1975
- Statement of Bonds Payable - December 31, 1976 and 1975
- Notes to Financial Statements - December 31, 1976 and 1975

Difference in Accounting Methods

The audited financial statements historically reflect a different amount for "Cost of Service in Excess of Revenue" than is shown on the Authority's "Statement of Net Cost of Service - By Express and Local" due to different methods of accounting for certain costs and revenues. The audited statements include certain non-cash expenditures such as depreciation (computed based on the useful lives of the assets) and interest on Federal loans, in cost of service, and exclude from operating revenue reimbursements from the state and communities outside the MBTA district, whereas the Authority includes principal payments on debt as an expense in lieu of depreciation, and certain reimbursements in income.

The two amounts are reconciled as follows:

"Cost of Service in Excess of Revenue" per Authority's "Statement of Net Cost of Service - By Express and Local" (page 2)	\$(162,776,215)
ADD: Amount subtracted by the MBTA in the "Statement of Net Cost of Service - By Express and Local" (page 2) for charges and credits made directly to the "Unreimbursed Deficit" account during the year. In order not to distort the net cost of service, it is added back into the deficit as the "Unreimbursed Deficit" on page 2 to arrive at "Net Assessable Cost of Service".	(950,508)
ADD: Interest on the Penn Central Loan (See Note U)	(1,337,129)
ADD: The reimbursement from outside communities, carried by the MBTA as an income item because it is not assessable to other cities and towns	(1,051,897)
ADD: Gasoline and fuel taxes reimbursed by the state carried by MBTA as income.	(405,131)
ADD: The amount that depreciation expense exceeded bond payments during the year (See note (1) (f) paragraph 2, page xi)	(4,498,811)
SUBTRACT: The credit from rents on Penn Central land which is used to reduce interest due on the Penn Central loan and thus never enters the MBTA assessable cost of service (see above)	12,891
Total Cost of Service in Excess of Revenue per Audited Statement	<u><u>\$ (171,006,800)</u></u>

ARTHUR ANDERSEN & CO.

BOSTON, MASSACHUSETTS

To the Board of Directors of

Massachusetts Bay Transportation Authority:

We have examined the balance sheet and statement of bonds payable of the MASSACHUSETTS BAY TRANSPORTATION AUTHORITY (a political subdivision of the Commonwealth of Massachusetts) as of December 31, 1976, and December 31, 1975, and the related statements of revenue and cost of service, unreimbursed cost of service, and changes in financial position for the years then ended. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

In our opinion, the accompanying financial statements present fairly the financial position of the Massachusetts Bay Transportation Authority as of December 31, 1976, and December 31, 1975, and the results of its operations and the changes in its financial position for the years then ended, in conformity with generally accepted accounting principles consistently applied during the periods.

Arthur Andersen & Co.

Boston, Massachusetts,
March 18, 1977.

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

BALANCE SHEET - DECEMBER 31, 1976 AND 1975

A S S E T S

	<u>1976</u>	<u>1975</u>
TRANSPORTATION PROPERTY, at cost (Notes 1 and 6):		
Transportation property in service	\$581,350,076	\$507,445,780
Less - Reserve for depreciation	<u>138,000,457</u>	<u>128,213,734</u>
	\$443,349,619	\$379,232,046
Construction in progress (Notes 1 and 6)	63,071,561	75,408,185
Property held for expansion (Note 11)	<u>58,987,700</u>	<u>19,485,000</u>
	<u>\$565,408,880</u>	<u>\$474,125,231</u>
SPECIAL FUNDS, consisting of Cash and Certificates of Deposit:		
Construction funds, held by the bond fiscal agent	\$27,255,841	\$56,181,885
Funds received for relocation of facilities (Note 3)	269,762	269,762
Federal grants and other special funds (Notes 1 and 8)	<u>943,482</u>	<u>1,170,960</u>
	<u>\$28,469,085</u>	<u>\$ 57,622,607</u>
CURRENT ASSETS:		
Cash	\$2,992,898	\$1,778,538
Certificates of Deposit and Securities under Agreements to Repurchase	34,271,696	17,056,927
Accounts receivable -		
Commonwealth of Massachusetts	30,042,372	12,232,073
Federal Department of Transportation (Note 12)	-	11,172,532
Boston Redevelopment Authority (Note 8)	597,071	1,858,187
Other	2,135,347	4,401,480
Materials and supplies, at average cost	7,570,245	6,954,028
Prepaid expenses	<u>213,614</u>	<u>457,091</u>
	<u>\$77,823,243</u>	<u>\$55,910,856</u>
DEFERRED CHARGES, (Notes 1 and 9)	<u>\$11,711,995</u>	<u>\$10,912,384</u>
	<u>\$683,413,203</u>	<u>\$598,571,078</u>

The accompanying notes are an integral part of these financial statements

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

BALANCE SHEET - DECEMBER 31, 1976 AND 1975

L I A B I L I T I E S

	<u>1976</u>	<u>1975</u>
LONG-TERM DEBT, exclusive of current maturities (Note 5):		
Bonds payable	\$334,532,558	\$346,261,817
Loans payable to Federal Department of Transportation, including accrued interest of \$5,280,801 in 1976 and \$3,943,672 in 1975 (Note 11)	<u>48,941,263</u>	<u>23,443,672</u>
	<u>\$383,473,821</u>	<u>\$369,705,489</u>
UNREIMBURSED COST OF SERVICE (Note 1)	<u>\$ (3,535,379)</u>	<u>\$ (4,485,887)</u>
CURRENT LIABILITIES:		
Current maturities of bonds payable (Note 5)	\$11,729,259	\$11,730,259
Notes payable (\$50,000,000 @ 4.19% due December 30, 1977 and \$30,000,000 @ 9% due December 31, 1976) (Note 5)	50,000,000	30,000,000
Accounts payable	12,486,546	11,926,750
Accrued liabilities -		
Payroll	1,907,226	1,390,747
Interest	4,806,887	4,961,651
Other	<u>2,105,662</u>	<u>1,596,341</u>
	<u>\$83,035,580</u>	<u>\$61,605,748</u>
COMMITMENTS AND CONTINGENCIES (Notes 1, 4 and 6)		
DEFERRED CREDITS (Note 3)	<u>\$6,579,707</u>	<u>\$6,795,176</u>
GRANTS (Notes 1 and 8):		
Federal grants	\$220,230,654	\$164,880,287
Less - Amortization	<u>17,925,051</u>	<u>11,606,084</u>
	\$202,305,603	\$153,274,203
Boston Redevelopment Authority	11,999,479	11,821,970
Less - Amortization	<u>445,608</u>	<u>145,621</u>
	<u>\$213,859,474</u>	<u>\$164,950,552</u>
	<u>\$683,413,203</u>	<u>\$598,571,078</u>

The accompanying notes are an integral part of these financial statements.

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

STATEMENT OF REVENUE AND COST OF SERVICE

FOR THE YEARS ENDED DECEMBER 31, 1976 AND 1975

	<u>1976</u>	<u>1975</u>
OPERATING REVENUE:		
Transportation	\$53,122,315	\$51,275,620
Other	<u>1,956,749</u>	<u>1,418,335</u>
	<u>\$55,079,064</u>	<u>\$52,693,955</u>
OPERATING EXPENSES (Note 10):		
Transportation service	\$79,411,111	\$75,887,100
Maintenance	41,620,209	38,026,664
Electric power	13,236,682	12,827,738
Depreciation and amortization (Notes 1 and 8)	15,904,069	11,376,802
General and administrative expenses -		
Salaries and wages	8,854,490	8,493,288
Employee pension and insurance benefits (Notes 1 and 4)	23,548,239	21,731,275
Injuries and damages and workmen's compensation claims (Note 1)	4,365,069	3,900,194
Other	<u>3,934,247</u>	<u>3,106,478</u>
	<u>\$190,874,116</u>	<u>\$175,349,539</u>
Operating loss	\$ (135,795,052)	\$ (122,655,584)
OTHER INCOME, including interest of \$3,859,605 in 1976 and \$11,410,152 in 1975		
	3,913,318	11,724,240
INTEREST EXPENSE, including \$17,118,072 on long-term debt in 1976 and \$18,697,904 in 1975		
	(21,145,635)	(26,045,982)
RAILROAD COMMUTER SUBSIDIES, including amortization of the original Railroad Contract Assistance Program of \$325,000 in both 1976 and 1975 (Notes 1, 2 and 9)		
	<u>(17,979,431)</u>	<u>(14,887,764)</u>
Cost of service in excess of revenue	<u>\$ (171,006,800)</u>	<u>\$ (151,865,090)</u>

The accompanying notes are an integral
part of these financial statements.

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

STATEMENT OF UNREIMBURSED COST OF SERVICE

FOR THE YEARS ENDED DECEMBER 31, 1976 AND 1975

	<u>1976</u>	<u>1975</u>
BALANCE AT BEGINNING OF YEAR	\$4,485,887	\$7,453,044
ADD - Cost of service in excess of revenue	171,006,800	151,865,090
DEDUCT:		
Cost of service reimbursed by the Commonwealth of Massachusetts to be assessed to the cities and towns constituting the Authority (Note 7)	125,870,494	64,703,222
Contract Assistance, portion of the cost of service paid by the Commonwealth of Massachusetts in accordance with a contract for financial assistance between the Authority and the Commonwealth (Note 7)		
Assistance pursuant to Chapter 283 of the Acts of 1976	-	52,370,000
Assistance pursuant to Chapter 563 of the Acts of 1964 and Chapter 1140 of the Acts of 1973, as amended	20,468,582	20,828,444
Other	519,082	275,563
Federal Operating Assistance pursuant to Section 5 of the Urban Mass Transportation Act of 1964, as amended (Note 12)	16,868,565	11,172,532
Cost of service reimbursed by the cities and towns outside the Authority's area	1,051,897	1,003,701
State diesel and gasoline fuel taxes reimbursable to the Authority in accordance with Section 2 of Chapter 563 of the Acts of 1964	405,131	402,426
Amortization of Federal grants (Notes 1 and 8)	6,305,902	3,763,070
Amortization of BRA grants (Notes 1 and 8)	299,987	145,621
Amortization of deferred credits (Note 3)	<u>167,668</u>	<u>167,668</u>
BALANCE AT END OF YEAR	<u>\$3,535,379</u>	<u>\$4,485,887</u>

The accompanying notes are an integral part of these financial statements.

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

STATEMENT OF CHANGES IN FINANCIAL POSITION

FOR THE YEARS ENDED DECEMBER 31, 1976 AND 1975

	<u>1976</u>	<u>1975</u>
FUNDS WERE USED FOR:		
Cost of service in excess of revenue	\$171,006,800	\$151,865,090
Less - Charge to cost of service in excess of revenue which did not require funds -		
Depreciation of transportation property (Note 1)	(15,454,906)	(11,076,024)
Amortization of deferred charges (Notes 1 and 9)	(774,164)	(625,778)
Interest accrued on loan from Federal Department of Transportation (Note 11)	<u>(1,337,128)</u>	<u>(1,340,625)</u>
	\$153,440,602	\$138,822,663
Additions to transportation property, net	\$106,738,555	\$62,397,859
Increase in deferred charges	1,573,775	2,567,674
Decrease in bonds payable (Notes 5 and 6)	11,729,259	11,730,259
Decrease in loan to the Federal Department of Transportation	12,287	-
Decrease in deferred credits	<u>47,801</u>	<u>8,898</u>
Total funds used	<u>\$273,542,279</u>	<u>\$215,527,353</u>
FUNDS WERE PROVIDED BY:		
Net cost of service reimbursable by the Commonwealth of Massachusetts for the deficit to be assessed to the cities and towns constituting the Authority (Notes 1 and 7)	\$125,870,494	\$64,703,222
Contract assistance received from the Commonwealth of Massachusetts (Note 7)	20,987,664	73,474,007
Federal Operating Assistance (Note 12)	16,868,565	11,172,532
Reimbursements by the Commonwealth of Massachusetts of state diesel and gasoline fuel taxes	405,131	402,426
Reimbursement by cities and towns outside the Authority's area for service provided	1,051,897	1,003,701
Proceeds from loan from the Federal Department of Transportation	24,172,750	-
Grants from Federal and other sources (Notes 1 and 8)	55,514,811	39,745,552
Decrease in special funds	<u>29,153,522</u>	<u>24,736,124</u>
Total funds provided	<u>\$274,024,834</u>	<u>\$215,237,564</u>
RESULTING IN A WORKING CAPITAL INCREASE (DECREASE) OF:	<u>\$ 482,555</u>	<u>\$ (289,789)</u>
CHANGES IN ELEMENTS OF WORKING CAPITAL COSIST OF:		
Increase (decrease) in current assets -		
Cash	\$1,214,360	\$ (752,370)
Certificates of Deposit and Securities under Agreement to Repurchase	17,214,769	(98,702,875)
Accounts receivable	3,110,518	4,628,694
Materials and supplies	616,217	1,396,144
Prepaid expenses	<u>(243,477)</u>	<u>(32,293)</u>
	\$21,912,387	\$ (93,462,700)
Increase (decrease) in current liabilities -		
Current maturities of bonds payable	\$ (1,000)	\$ (109,000)
Notes payable	20,000,000	(95,000,000)
Accounts payable	559,796	1,424,615
Accrued liabilities	<u>871,036</u>	<u>511,474</u>
	\$21,429,832	\$ (93,172,911)
Increase (decrease) in working capital	<u>\$ 482,555</u>	<u>\$ (289,789)</u>

The accompanying notes are an integral part of these financial statements.

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

STATEMENT OF BONDS PAYABLE

DECEMBER 31, 1976 AND 1975

Massachusetts Bay Transportation Authority General Transportation System Bonds issued under General Laws, Chapter 161A, Section 23 of the Commonwealth of Massachusetts, 1967 Series A, dated March 1, 1967, 1970 Series A, dated September 1, 1970, 1972 Series A, dated September 1, 1972, and 1974 Series A, dated June 1, 1974 are all payable in annual installments on March 1; interest is payable semiannually on March 1 and September 1.

1967 Series A Bonds - The proceeds of the sale of the 1967 Series A Bonds were required to be used for payment of \$40,000,000 of Bond Anticipation Notes outstanding and the balance of \$70,000,000 was required to be deposited in the Bond Proceeds accounts. These bonds were issued to provide funds for the purposes outlined below. The debt outstanding at December 31, 1976 and 1975 is as follows:

<u>Purpose</u>	<u>First Principal Payment</u>	<u>Year of Maturity</u>	<u>Approximate Annual Payment</u>	<u>Average Interest Rate</u>	<u>1976</u>	<u>1975</u>
Express service transportation facilities	1969	2007	\$1,900,000	3.78%	\$58,900,000	\$60,800,000
Agreement with railroads	1968	1982	325,000	3.75	2,075,000	2,400,000
Buses and other purposes	1968	1979	325,000	3.75	975,000	1,300,000
Local service transportation facilities	1969	2007	50,000	3.78	1,550,000	1,600,000
Capital cost of certain transportation facilities including yards, shops and rolling stock	1969	2007	650,000	3.78	<u>20,150,000</u>	<u>20,800,000</u>
					<u>\$83,650,000</u>	<u>\$86,900,000</u>

1970 Series A Bonds - The proceeds of the sale of the 1970 Series A Bonds were required to be used for payment of \$5,365,000 of Bond Anticipation Notes outstanding and the balance of \$61,500,000 was required to be deposited in the Bond Proceeds accounts. These bonds were issued to provide funds for the purposes outlined below. The debt outstanding at December 31, 1976 and 1975 is as follows:

<u>Purpose</u>	<u>First Principal Payment</u>	<u>Year of Maturity</u>	<u>Approximate Annual Payment</u>	<u>Average Interest Rate</u>	<u>1976</u>	<u>1975</u>
Express service transportation facilities	1971	2010	\$1,540,000	6.32%	\$52,260,000	\$53,800,000
Buses and other purposes	1971	1982	295,000	6.00	1,730,000	2,025,000
Purchase and improvement of the Cambridge Subway	1971	1980	185,000	6.00	<u>740,000</u>	<u>925,000</u>
					<u>\$54,730,000</u>	<u>\$56,750,000</u>

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

STATEMENT OF BONDS PAYABLE

DECEMBER 31, 1976 AND 1975

(Continued)

1972 Series A Bonds - The proceeds of the sale of the 1972 Series A Bonds were used for payment of \$8,000,000 of Bond Anticipation Notes and the balance of \$32,000,000 was deposited in the Bond Proceeds accounts. These bonds were issued to provide funds for the purposes outlined below. The debt outstanding at December 31, 1976 and 1975 is as follows:

<u>Purpose</u>	<u>First Principal Payment</u>	<u>Year of Maturity</u>	<u>Approximate Annual Payment</u>	<u>Average Interest Rate</u>	<u>1976</u>	<u>1975</u>
Express service transportation facilities and other capital costs of the transportation system	1973	2012	\$865,000	5.25%	\$31,040,000	\$31,905,000
Bus acquisition	1973	1984	290,000	5.40	2,340,000	2,630,000
Bus garages	1973	1984	170,000	5.40	<u>1,320,000</u>	<u>1,490,000</u>
					<u>\$34,700,000</u>	<u>\$36,025,000</u>

1974 Series A Bonds - The proceeds of the sale of 1974 Series A Bonds were deposited in the Bond Proceeds accounts. These bonds were issued to provide funds for the purposes outlined below. The debt outstanding at December 31, 1976 and 1975 is as follows:

<u>Purpose</u>	<u>First Principal Payment</u>	<u>Year of Maturity</u>	<u>Approximate Annual Payment</u>	<u>Average Interest Rate</u>	<u>1976</u>	<u>1975</u>
Express service transportation facilities and other capital costs of the transportation system	1975	2014	\$1,800,000	6.53%	\$67,800,000	\$69,600,000
Bus and trackless trolley acquisition	1975	1986	300,000	7.00	<u>3,000,000</u>	<u>3,300,000</u>
					<u>\$70,800,000</u>	<u>\$72,900,000</u>

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

STATEMENT OF BONDS PAYABLE

DECEMBER 31, 1976 AND 1975

(Continued)

	<u>1976</u>	<u>1975</u>
Metropolitan Transit Authority Bond, payable in semiannual installments of \$500,000 to December, 2020 -- Interest payable is the interest payable by the Boston Metropolitan District on their contra debt and refunding issues, which for the years ended December 31, 1976 was 4.43% and for December 31, 1975 was 4.18%.	\$43,918,372	\$44,918,372

Rapid Transit Bond, payable in annual installments of \$536,259 to November, 2024 -- Interest is the actual interest on the City of Boston Transit Debt and refunding issues less income collected on the City's transit debt sinking fund, which for the years ended December 31, 1976 was 4.35% and for December 31, 1975 was 3.91%.	<u>\$25,740,445</u>	<u>\$26,276,704</u>
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Equipment Serial Bonds:

<u>Year of Maturity</u>	<u>Approximate Annual Payment</u>	<u>Interest Rate</u>		
1977	\$219,000	3.00%	219,000	438,000
1978	176,000	3.00	350,000	526,000
1981	127,000	1.50	635,000	762,000
1987	128,000	2.90	1,402,000	1,530,000
1988	131,000	2.90	1,572,000	1,703,000
1993	169,000	3.00	2,873,000	3,042,000
1993	100,000	3.20	<u>1,700,000</u>	<u>1,800,000</u>
	<u>\$1,050,000</u>		<u>\$8,751,000</u>	<u>\$9,801,000</u>

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

STATEMENT OF BONDS PAYABLE

DECEMBER 31, 1976 AND 1975

(Continued)

	<u>1976</u>	<u>1975</u>
Construction Bonds:		
2.00%, payable \$102,000 per annum to November 21, 1979, and \$4,590,000 on November 25, 1979	\$4,896,000	\$4,998,000
1.50%, payable \$84,333 per annum to March 1, 1981, and \$3,781,667 on March 1, 1981	4,203,333	4,287,667
2.10%, payable \$22,000 per annum to January 15, 1982, and \$990,000 on January 15, 1982	1,122,000	1,144,000
2.75%, payable \$47,000 per annum to March 1, 1983, and \$2,115,000 on March 1, 1983	2,444,000	2,491,000
2.30%, payable \$10,000 per annum to March 1, 1984, and \$450,000 on March 1, 1984	530,000	540,000
3.00%, payable \$55,000 per annum to July 1, 1988, and \$2,475,000 on July 1, 1988	3,135,000	3,190,000
3.60%, payable \$69,667 per annum to February 1, 1989, and \$3,135,000 on February 1, 1989	4,040,667	4,110,333
3.50%, payable \$19,000 per annum to September 15, 1990, and \$855,000 on September 15, 1990	1,121,000	1,140,000
3.20%, payable \$40,000 per annum to April 15, 1993, and \$1,800,000 on April 15, 1993	2,480,000	2,520,000
	<u>\$23,972,000</u>	<u>\$24,421,000</u>
	\$346,261,817	\$357,992,076
Less - Current maturities of bonds payable	<u>11,729,259</u>	<u>11,730,259</u>
Bonds payable	<u>\$334,532,558</u>	<u>\$346,261,817</u>

The accompanying notes are an integral part of these financial statements.

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

NOTES TO FINANCIAL STATEMENTS

DECEMBER 31, 1976 AND 1975
(Continued)

(1) Summary of Significant Accounting Policies

(a) Transportation Property

Transportation property is stated at historical cost. Such costs may include MBTA labor costs for employees working on capital projects plus related fringe benefits and an allocated share of general and administrative costs. The cost of funds required to finance the expansion of the transportation system is expensed currently.

(b) Depreciation

Depreciation is provided in the accounts based on the straight-line method at rates which are designed to amortize the original cost of the property over its estimated useful life. The major categories of transportation property and the depreciation rates used on the depreciable portion of the property for the years ended December 31, 1976 and 1975 are:

	Rates			Cost	
	Low	High	Average	1976	1975
Ways and structures	1.23%	10.00%	2.03%	\$414,689,941	\$351,086,762
Equipment	2.00%	18.00%	4.85%	128,075,405	117,774,288
Land	-	-	-	38,584,730	38,584,730
				<u>\$581,350,076</u>	<u>\$507,445,780</u>

(c) Deferred Charges

Certain costs incurred by the Authority, primarily related to the expansion and modernization of the transportation system, as further described in Note 9, have been capitalized. These costs are then amortized by charges to cost of service over the future periods in which the benefit to the Authority is estimated to be realized.

(d) Injuries and Damages

In 1975, the Authority was a self-insurer on claims for injuries and damages to the extent of \$100,000 per accident. In 1976, this self-insurance limit was increased to \$1,000,000 per accident. Insurance coverage is carried on claims in excess of that amount up to a maximum limit of \$15,100,000 per accident. The Authority accounts for injuries and damages by charges to operating expenses as payments are made except for the establishment of a fund of \$250,000 in 1976 because of the change in the self-insurance limit from \$100,000 to \$1,000,000.

(e) Workmen's Compensation Insurance

Effective May 1, 1965, the Authority became a self-insurer on workmen's compensation claims under the workmen's compensation laws of the Commonwealth of Massachusetts to the extent of \$50,000 per occurrence. Insurance coverage is carried on each occurrence in excess of that amount up to a maximum limit of \$4,050,000 per occurrence. The Authority accounts for these claims by charges to operating expenses as payments are made.

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

NOTES TO FINANCIAL STATEMENTS

DECEMBER 31, 1976 AND 1975

(Continued)

(1) Summary of Significant Accounting Policies (Continued)

(f) Unreimbursed Cost of Service

The legislative act under which the Massachusetts Bay Transportation Authority was established provides, among other things, that the Commonwealth of Massachusetts shall reimburse the Authority for the "net cost of service" as defined. Certain of these amounts reimbursed are then assessed to the 79 cities and towns constituting the Authority. The "net cost of service", as defined, includes a charge equal to the payments made on long-term debt during the period, and does not include a charge for depreciation and certain amortization. For financial reporting purposes however, the Authority follows the generally accepted method of depreciating and amortizing the cost of assets over their estimated useful lives.

The cumulative excess of depreciation and amortization charges over payments made on long-term debt is charged to the unreimbursed cost of service account and is recovered in years when payments made on long-term debt exceed depreciation and amortization. During the year ended December 31, 1976, depreciation and amortization charges exceeded payments on long-term debt by \$4,498,811. In 1975, payments exceeded depreciation and amortization charges by \$137,457. The excess of depreciation and amortization charges over payments in 1976 is due primarily to the start of depreciation charges on construction projects completed and put into service during the year.

In addition, the "net cost of service" as defined does not include charges for interest accrued on the Loans Payable to the Federal Department of Transportation (\$1,324,238 in 1976 and \$1,246,659 in 1975) (Note 11). However, for financial reporting purposes, these amounts have been charged to cost of service, in accordance with generally accepted accounting principles. Interest accrued will be included in "net cost of service" assessable to the cities and towns in the year it is paid.

(g) Grants

The Authority receives capital expansion grants from certain governmental agencies (see Note 8) to be used for various purposes connected with the planning, modernization and expansion of transportation facilities. These grants are deferred until such time as the related facilities are put into service. The credits are then amortized over the estimated useful life of the assets as a reduction of Unreimbursed Cost of Service. As of December 31, 1976, the Authority had requisitioned but not received capital grant funds totaling \$10,833,516 which will be reflected on the books when received.

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

NOTES TO FINANCIAL STATEMENTS

DECEMBER 31, 1976 AND 1975

(Continued)

(2) Railroad Commuter Subsidies

Under Chapter 161A Section 3(f) of the General Laws, the Authority may enter into agreements with private transportation companies, railroads and other concerns, providing for joint or cooperative operation of any mass transportation facility and for operation and use of any mass transportation facility and equipment for the account of the Authority. In accordance with these laws, the Authority entered into agreements with the Boston and Maine and Penn Central Railroads and ConRail during 1976 and 1975 for the rendering of transportation service.

The Railroad Revitalization and Regulatory Reform Act of 1976, enacted February 5, 1976, adds a new Section 17 to the Urban Mass Transportation Act of 1964. Section 17 authorizes the Urban Mass Transportation Administration (UMTA) to furnish emergency operating assistance for the continuation of certain passenger rail service operated by ConRail as of April 1, 1976. The amount of Section 17 subsidy available to the Authority is a percentage of the increased costs of continuing passenger service up to a maximum determined by standards set by the Rail Services Planning Office of the Interstate Commerce Commission.

The following percentages apply during the periods indicated:

	<u>Federal Share of Additional Cost</u>
Optional Period I: Sept. 28, 1976 - March 26, 1977	100%
Optional Period II: March 27, 1977 - March 31, 1978	90%
Optional Period III: April 1, 1978 - Sept. 27, 1978	50%

ConRail has provided the required service through March 13, 1977, but no agreement has as yet been reached as to the amount of additional costs which are due to ConRail or the amount which may be received from UMTA under a Section 17 grant. Accordingly, an operating assistance grant and an off-setting accrued expense for the estimated amount of additional costs related to continued passenger service have not been reflected in these financial statements.

In connection with the purchase of certain assets of the Boston and Maine Corporation (B & M) (see Note 11) the Authority entered into a five year operating agreement with the B & M. The Authority has agreed to pay the B & M all direct costs of operating the service, plus an equitable share of indirect costs, joint costs, applicable overhead and an annual incentive payment of ten cents per revenue passenger carried.

In the event that the Advisory Board fails to approve the annual budgetary provision for the service, this agreement shall terminate subject to certain labor protection obligations and liquidated damages in lieu of incentive payments for passengers carried.

The operating subsidy paid or payable by the Authority for commuter rail service amounted to \$17,654,431 in 1976 and \$14,562,764 in 1975.

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

NOTES TO FINANCIAL STATEMENTS

DECEMBER 31, 1976 AND 1975

(Continued)

(3) Relocation of Facilities

In April, 1967, the Authority entered into an agreement with the John Fitzgerald Kennedy Library Incorporated, whereby the Authority would relocate certain transportation facilities in order to convey certain properties to the United States and the Library Corporation.

The Commonwealth of Massachusetts appropriated \$6,098,400 to the Authority for the part of the properties conveyed to the United States. In addition, the Authority received \$1,330,112 from the Library Corporation for the remaining part of the properties, totaling \$7,428,512.

These facilities, having a net book value of \$709,807, have been retired. The amount received in excess of net book value (\$6,718,705), less \$12,000 of expense incurred in connection with the acquisition of replacement property, is included in Deferred Credits on the balance sheet.

In 1975, the replacement facilities were completed and placed in service. Amortization of the deferred credit began in 1975 and amounted to \$167,668 in both 1976 and 1975. The deferred credit is being amortized over a 40 year period (estimated useful life of the facility) and is accounted for as a reduction of the unreimbursed cost of service.

(4) Pension

The Authority has agreed to provide retirement benefits to employees through a contributory pension plan which, as currently amended, requires the payment by the Authority of an amount equal to 11-5/8% of the total payroll of the employees who are members of the plan. The cost of the plan to the Authority for the years ended December 31, 1976 and 1975 was approximately \$14,029,000 and \$13,341,000 respectively. The cost in both years is funded currently and includes interest on unfunded prior service costs, but does not include amortization of the unfunded prior service costs. The Authority is not legally obligated, under the agreement, to fund the actuarial cost of future benefits to present and retired employees. The most recent actuarial valuation was made as of December 31, 1975, and at that time, unfunded prior service costs approximated \$126,800,000.

The actuarially computed value of vested benefits, based upon the most recent actuarial report (dated December 31, 1975) was \$197,615,788. As of December 31, 1975, the market value of the fund assets was \$125,678,817 and the computed value of vested benefits exceeded the market value of fund assets by \$71,936,971. The market value of fund assets as of December 31, 1976 was \$157,582,121. The change in the market value of the fund is primarily due to appreciation in the value of securities held during the year.

NOTES TO FINANCIAL STATEMENTS

DECEMBER 31, 1976 AND 1975

(Continued)

(4) Pension (Continued)

The Authority has also entered into agreements with certain salaried employees to provide supplemental pension benefits after retirement. In order to receive the benefits, the employee must have at least ten years of service and be eligible for retirement under provisions of the contributory pension plan. The annual supplemental benefit paid is equal to 1% of the employee's average annual compensation received during the last five years of service multiplied by the number of years of service, but limited to an amount which, when added to the benefit available under the contributory pension plan, is not greater than 65% of the employee's five year average annual compensation. This 65% limit was temporarily changed to 70% for certain employees retiring between January 1, 1976 and September 1, 1977. At December 31, 1976 approximately 360 employees were either receiving supplemental benefits or will be eligible to receive them upon retirement. Prior to 1976, the Authority charged cost of service with the supplemental pension expense when it was paid. In 1976, the Authority changed to a policy of charging cost of service for the actuarially determined normal cost, interest on the unfunded prior service costs, and amortization of the unfunded prior service cost over forty years. This change increased the charge for supplemental pension benefits included in 1976 cost of service by approximately \$170,000 to \$541,980 compared with a charge of \$285,395 in 1975.

(5) Long-Term Debt

The legislative act under which the Massachusetts Bay Transportation Authority was established provides among other things, that if at any time any principal or interest is due on any bond or note issued or assumed by the Authority and funds to pay the same are not available, the Commonwealth of Massachusetts shall thereupon pay over to the Authority the amount required to meet such obligations.

(6) Construction Program

The Authority's program for mass transportation within the area constituting the Authority involves future total estimated costs of \$2.2 billion. Financing requirements for the program are expected to be met through various sources, including the issuance by the Authority of long-term debt securities. The remaining financing requirements are expected to be met through Federal transit aid, Federal urban renewal funds, interstate transfer funds and relocation cost reimbursements. Currently, the Authority's authorized debt ceiling is \$464,000,000.

Expenditures on the program through December 31, 1976, have been financed through the issuance of \$290,000,000 of Massachusetts Bay Transportation Authority General Transportation System Bonds, and other sources as mentioned above.

As of December 31, 1976, the Authority has entered into construction commitments amounting to approximately \$171,000,000.

NOTES TO FINANCIAL STATEMENTSDECEMBER 31, 1976 AND 1975

(Continued)

(7) Contract Assistance

The legislative act authorizing the issuance of debt securities currently provides for participation by the Commonwealth of Massachusetts in the payment of annual debt service costs on bonds issued by the Authority as follows: on the \$175,000,000 of bonds issued prior to January 1, 1971, the debt service on \$144,800,000 is eligible for contract assistance at either 90% or 50%, as provided by contract; the annual debt service on \$115,000,000 of bonds issued after January 1, 1971, is eligible for contract assistance at 90%. However, regardless of when issued, contract assistance on debt service will not be extended to over \$332,000,000 at any one time.

In 1975, the Commonwealth enacted legislation which provided the Authority with an additional amount of contract assistance for the cost of service amounting to \$52,370,000. This additional contract assistance is not assessable to the 79 cities and towns constituting the Authority and is applied for assessment purposes as a reduction of all cost items comprising the net cost of service of the Authority. This legislation is pending for 1976 and therefore the Authority has not as yet received additional contract assistance for the cost of service in 1976. If additional contract assistance is received it will reduce the \$125,870,494 to be assessed to the cities and towns constituting the Authority.

In 1973, contract assistance of \$15,051,861 was received by the Authority for funded debt, and in addition \$4,513,946 was paid by the Commonwealth for the Authority as a railroad commuter subsidy (Note 2). These amounts, totaling \$19,565,807 under Chapter 1140 of the Acts of 1973, represent the minimum contract assistance to be paid by the Commonwealth in any subsequent calendar year. In 1976 and 1975, the Authority became eligible for \$20,468,582 and \$20,828,444 respectively. In addition, from July 1, 1975 through June 30, 1976, the Authority received contract assistance under Chapter 859 of the Acts of 1975 amounting to 50% of the net additional cost of providing rail service to certain cities and towns outside the district. Chapter 283 of the Acts of 1976 increased this assistance to 75% of the net additional cost for the period July 1, 1976 through June 30, 1977. The assistance under these Chapters amounted to \$519,082 in 1976 and \$275,563 in 1975.

(8) Grants

Under the Urban Mass Transportation Act of 1964, the Federal Department of Transportation has approved for the Authority grants for capital expansion aggregating \$614,379,517. The Authority has received \$220,230,654 of this amount. These funds have been used by the Authority to purchase new equipment and to modernize and expand mass transportation facilities.

Federal grant amortization credited to the unreimbursed cost of service amounted to \$6,305,902 in 1976 and \$3,763,070 in 1975.

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

NOTES TO FINANCIAL STATEMENTS

DECEMBER 31, 1976 AND 1975

(Continued)

(8) Grants (Continued)

Under an agreement between the Boston Redevelopment Authority and the Massachusetts Bay Transportation Authority, the BRA has approved grants aggregating \$12,000,000 in connection with the expansion of mass transportation facilities. The Authority has incurred costs totaling \$11,999,479 related to this agreement. Of this amount the Authority has not as yet been reimbursed by the BRA for \$514,196 which is included in accounts receivable.

During 1975, those facilities for which the BRA grant has partially paid, were opened for public use and capitalized for accounting purposes. In relation to this, BRA grant amortization amounting to \$299,987 in 1976 and \$145,621 in 1975 has been credited to the unreimbursed cost of service.

(9) Deferred Charges

Under the original Railroad Contract Assistance Program the Authority incurred costs which totaled \$5,000,000, which are being amortized to cost of service over fifteen years. The amortization amounted to \$325,000 in both 1976 and 1975, and the unamortized balance at December 31, 1976 was \$2,075,000. In addition, in connection with the Authority's acquisition of the Eastern Mass. Street Railway Company in 1968, costs of \$611,362 were not assigned to tangible assets. These costs are being amortized by charges to cost of service over forty years. Amortization in both 1976 and 1975 amounted to \$15,284 and the unamortized balance at December 31, 1976 was \$489,090.

Certain other deferred charges principally relating to the expansion and modernization of the transportation system are being amortized by charges to cost of service over twenty years. Amortization amounted to \$446,945 in 1976 and \$273,186 in 1975, and the unamortized balance at December 31, 1976 was \$8,837,056.

(10) Supplementary Operating Expense Information

Operating expenses captioned below consist of the following:

	<u>1976</u>	<u>1975</u>
Transportation services -		
Salaries and wages	\$68,608,491	\$65,089,881
Taxes, including payroll taxes	4,001,804	3,873,941
Fuel	2,720,305	2,619,853
Other	4,080,511	4,303,425
	<u>\$79,411,111</u>	<u>\$75,887,100</u>

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

NOTES TO FINANCIAL STATEMENTS

DECEMBER 31, 1976 AND 1975

(Continued)

(10) Supplementary Operation Expense Information (Continued)

	<u>1976</u>	<u>1975</u>
Maintenance -		
Salaries and wages	\$29,625,916	\$28,300,191
Materials and supplies	10,251,571	8,039,433
Taxes, including payroll taxes	1,742,721	1,687,040
	<u>\$41,620,208</u>	<u>\$38,026,664</u>
Electric power -		
Salaries and wages	\$3,718,413	\$3,429,133
Power purchased	2,615,777	2,079,955
Fuel	6,459,738	6,851,478
Taxes, including payroll taxes	193,636	187,449
Other	249,118	279,723
	<u>\$13,236,682</u>	<u>\$12,827,738.</u>

(11) Property Held for Expansion

On January 26, 1973, the Authority purchased 145 miles of the Penn Central Railroad's right of way and related properties in Eastern Massachusetts. This purchase was financed with a \$19.5 million (6.875% interest rate) loan from the Federal Department of Transportation. The property acquired is pledged as security for the loan.

On December 27, 1976, the Authority purchased certain assets of the Boston and Maine Corporation (B & M), including 270 miles of right-of-way, track and related properties and 84 Budd Rail Diesel cars. The cost of \$39.5 million was financed with a \$24,172,750 (8% interest rate) loan from the Federal Department of Transportation secured by the assets purchased, a \$12,261,800 Federal Department of Transportation grant, and \$3,065,450 of local funds.

Both of the Federal Department of Transportation loan agreements provide for the Authority to repay the principal plus accrued interest at the earlier of (a) ten years from date of purchase, (b) the date a grant agreement for actual construction of mass transportation facilities is made, or (c) the date a decision is made not to use the property for mass transportation. The Penn Central agreement also provides that 75% of the principal shall only be payable out of the proceeds from sale of the property, if sold.

Interest totaling \$5,280,801 (\$1,337,128 in 1976 and \$1,340,625 in 1975) has been accrued in the accompanying financial statements at December 31, 1976. However, this interest is not included in "net cost of service" assessable to the 79 cities and towns until the year it is paid.

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

NOTES TO FINANCIAL STATEMENTS

DECEMBER 31, 1976 AND 1975

(Continued)

(12) Federal Assistance (Department of Transportation)

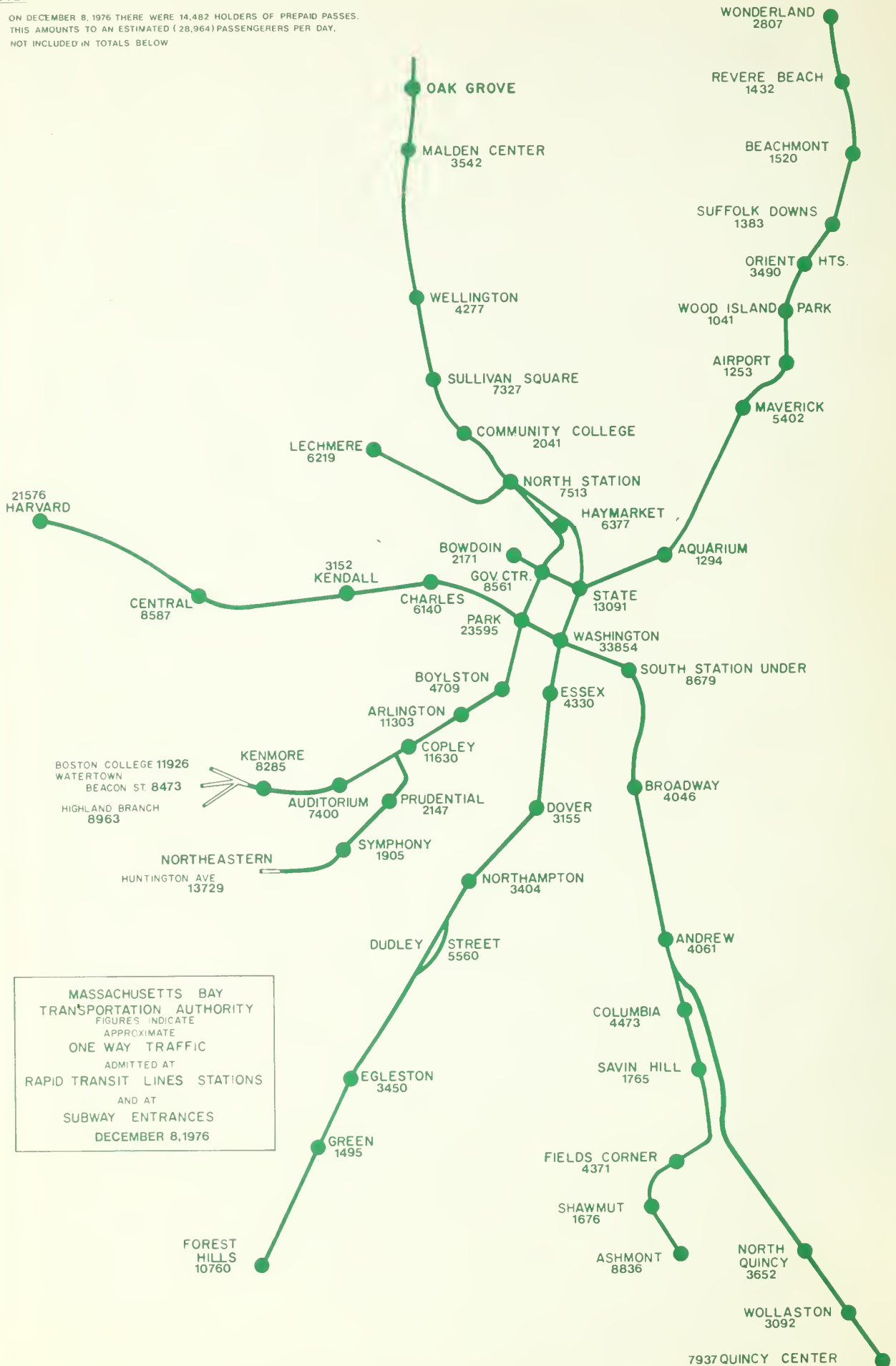
Section 5 of the Urban Mass Transportation Act of 1964, as amended by the National Urban Mass Transportation Act of 1974, provides a six year mass transportation assistance program for urbanized areas apportioned on the basis of a statutory formula. Urbanized areas may use Section 5 funds by developing a specific capital assistance and/or operating assistance projects under the statutory requirements of the Act, as defined. The Authority has been designated the recipient for the Section 5 operating subsidy funds for the Boston Urbanized Area. The projected apportionment for the six year program for the Boston Urbanized Area, limited by the availability of these funds, is as follows:

<u>Period in which assistance becomes available</u>	<u>Projected Amount of Assistance Available</u>
November 26, 1974 - June 30, 1975	\$6.5 Million
July 1, 1975 - June 30, 1976	10.9 "
July 1, 1976 - June 30, 1977	16.9 "
July 1, 1977 - June 30, 1978	16.9 "
July 1, 1978 - June 30, 1979	18.5 "
July 1, 1979 - June 30, 1980	<u>16.9</u> "
Total	<u>\$86.6</u> "

During 1976, the Authority received \$11,172,532 of operating assistance funds applied for in prior years, and applied for and received \$16,868,565, the entire amount of operating assistance funds available for the period beginning July 1, 1976.

NOTE:

ON DECEMBER 8, 1976 THERE WERE 14,482 HOLDERS OF PREPAID PASSES.
THIS AMOUNTS TO AN ESTIMATED (28,964) PASSENGERS PER DAY.
NOT INCLUDED IN TOTALS BELOW





1977 ANNUAL REPORT



GOVERNMENT DOCUMENT
COLLECTION
JUL 25 1978
UNIVERSITY MICROFILMS
SERIALS ACQUISITION
LIBRARY



BOARD OF DIRECTORS — 1977



ROBERT R. KILEY
Chairman and Chief Executive Officer



FORREST I. NEAL, JR.



RICHARD D. BUCK



JOHN J. McCARTHY



GUIDO R. PERERA, JR.

NEW MEMBERS OF BOARD OF DIRECTORS — 1978



CLAIRE R. BARRETT
(Replaced Mr. Neal)

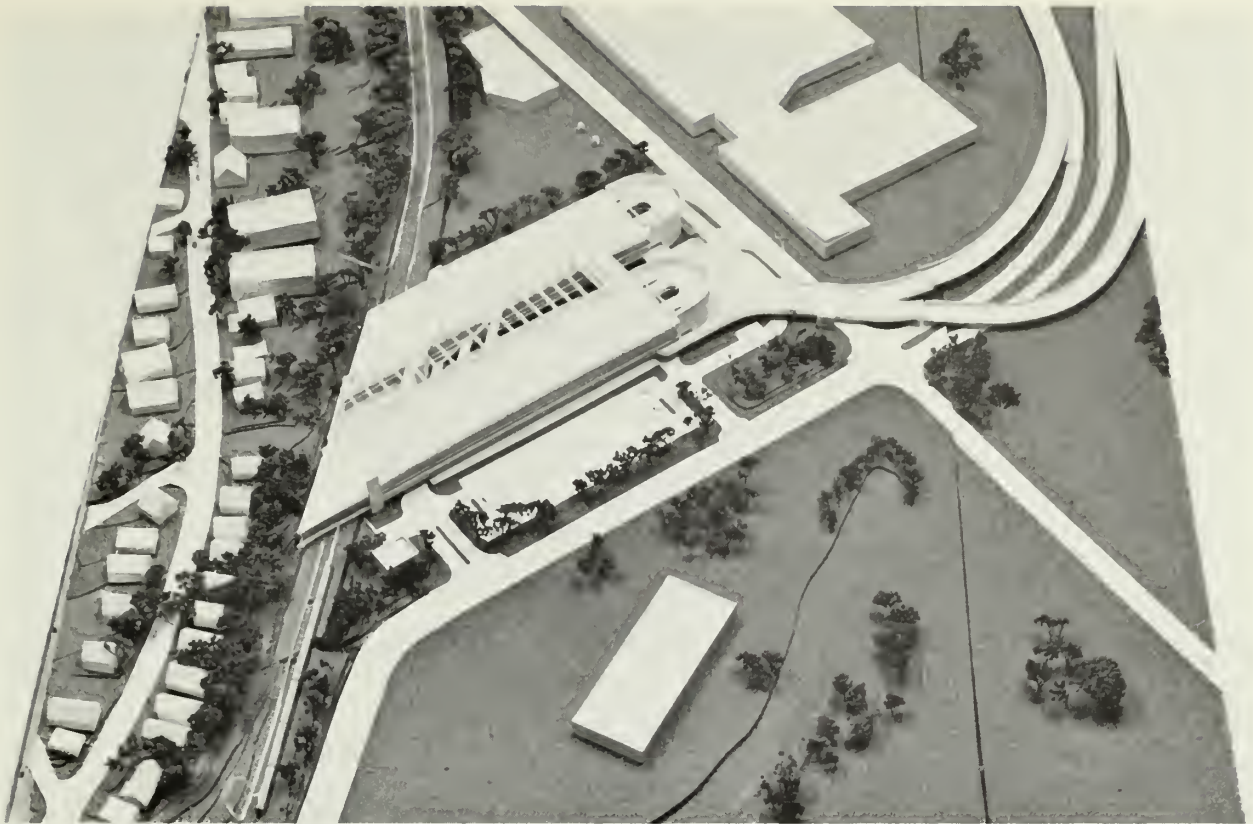


THEODORE C. LANDSMARK
(Replaced Mr. McCarthy)

THE YEAR IN PICTURES



GROUNDBREAKING DAY for the Red Line's new Braintree Station and 1,200-car parking garage was July 13.



MODEL SHOWS Quincy Adams Station and 2,000-car parking garage in South Quincy, intermediate stop between Quincy Center and Braintree Stations.



NEW PARKING LOT added 350 spaces at the Red Line's North Quincy Station.



DEPRESSED ROADBED and retaining walls are under construction on the Braintree Extension just south of Quincy Center Station.

Alignment. Between Harvard and Alewife the right-of-way lies within MBTA or city property for 80% of its length, the remaining 20% is under private property. Where the line passes under private property, easements will have to be obtained; construction may also necessitate several takings. (▼ marks intervals of 1000 feet.)



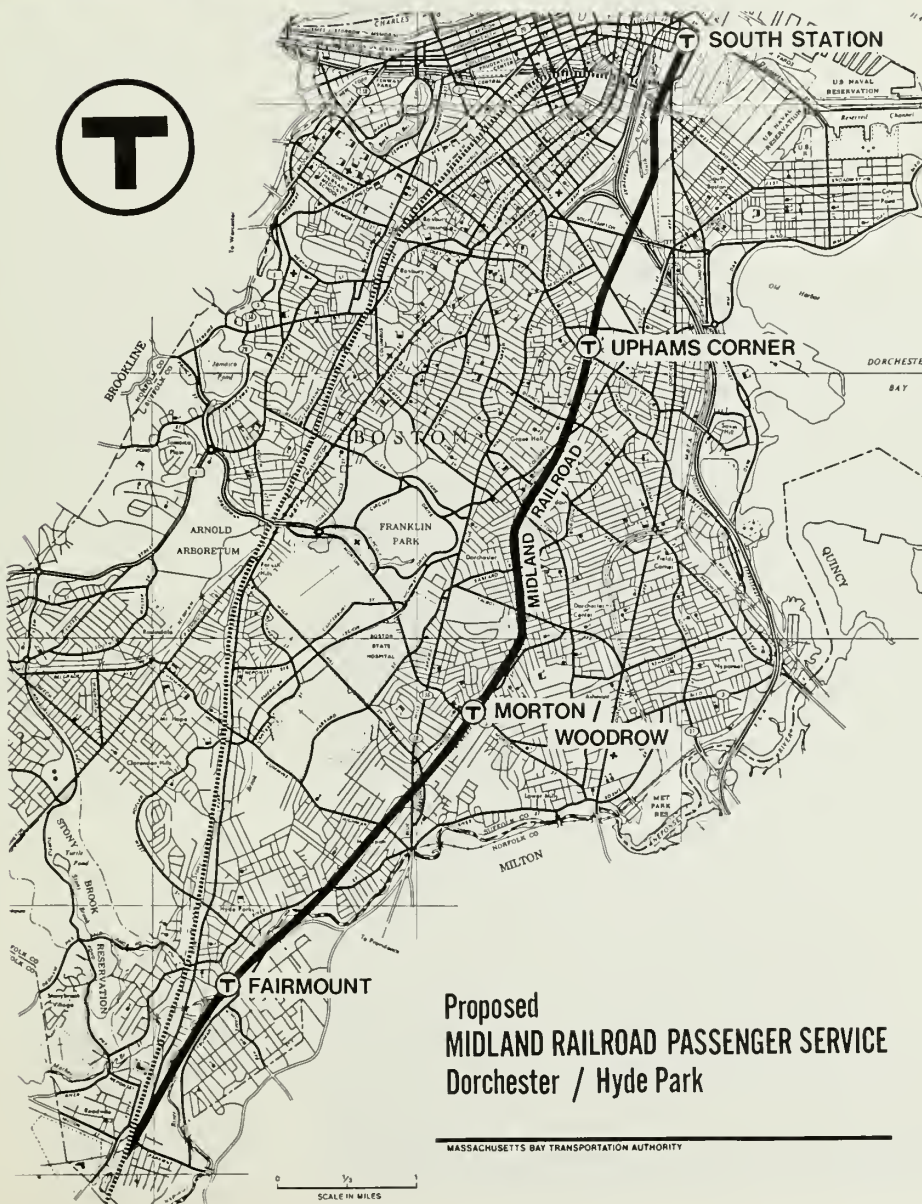
Profile. The tunnel enters bedrock about midway to Porter Square and leaves it just east of Davis, near Grove St. The cut-and-cover segment begins at Davis Square Station. At Harvard and Porter the track is on two levels.



Red Line - Harvard to Alewife

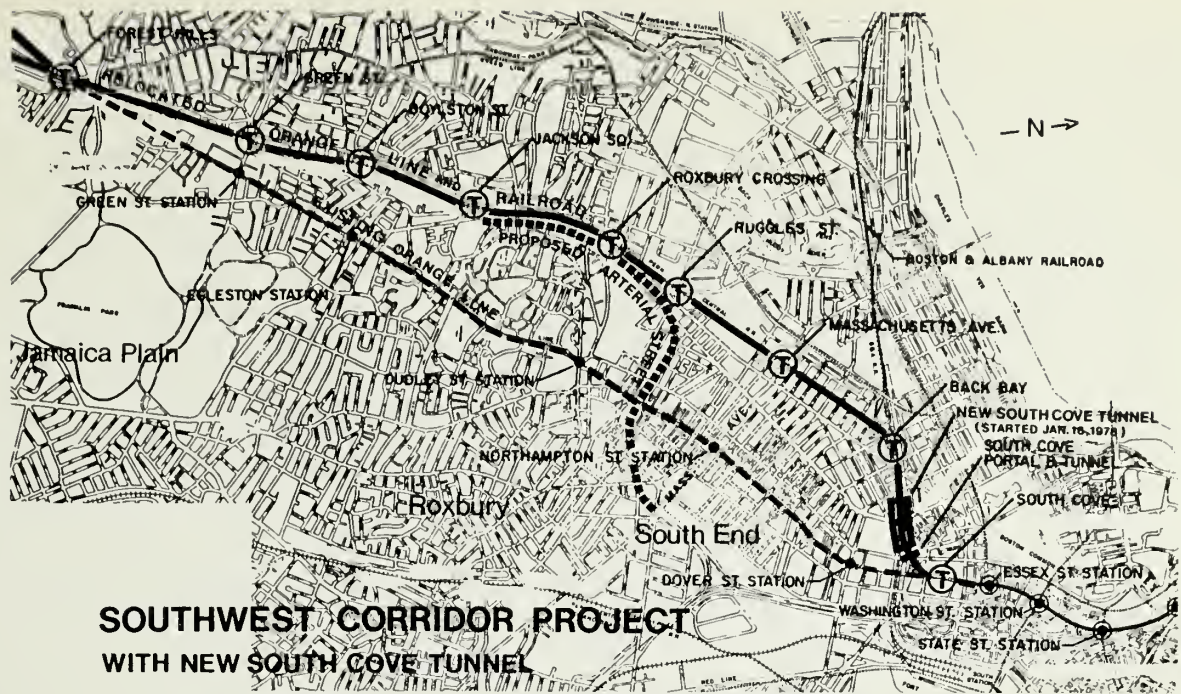


OAK GROVE STATION was opened for Orange Line service on March 19 and dedicated March 21 by, l. to r., Governor Dukakis, Director Neal, Chairman Kiley, Director McCarthy and Secretary Salvucci.



Proposed
MIDLAND RAILROAD PASSENGER SERVICE
Dorchester / Hyde Park

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY



**SOUTHWEST CORRIDOR PROJECT
WITH NEW SOUTH COVE TUNNEL**



8-INCH WATER MAIN at Chandler Street, Boston, was relocated preparatory to the start of construction of the South Cove Tunnel link between the existing Orange Line and the planned relocated line.



ALUMINUM-CLAD COACH is one of 25 Pullman Standard will manufacture for MBTA commuter railroad service under a contract signed December 7.



TRAIN SERVICE returned to Tufts University Station September 15 with the arrival of a rail diesel car, manufactured by the Budd Company about 20 years ago.



A DOZEN OF OUR BEST FINALISTS IN THE **T** BUS ROADEO

Gus Swanson - Cabot
(Local winner who represented
the **T** at National Roadeo)

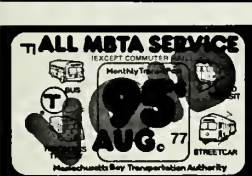
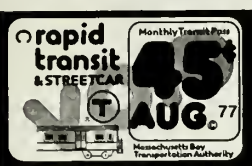
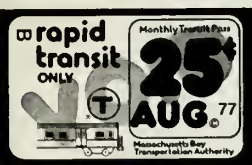
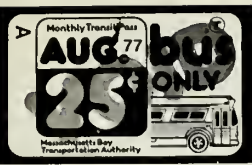
Bill Basile - Quincy
Bob Chaffee - Arborway
Bob Cummings - Salem St
Joe Dooley - Bennett St.

Dennis Ingersoll - Lynn
Henri Jenner - Arborway
Leon Mason - Bennett St
Peter Messina - Salem St
Ted Moriello - Lynn
Bill Mudge - Quincy
Joe Rizzitano - Cabot

© 1964, 1965, 1966, 1967, 1968, 1969, 1970, 1971, 1972, 1973, 1974, 1975, 1976, 1977, 1978, 1979, 1980, 1981, 1982, 1983, 1984, 1985, 1986, 1987, 1988, 1989, 1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025



NEW STYLE navy blue uniform is modeled by "Gus" Swanson, left, wearing the new Winter coat and hat, and Willie Lawrence, wearing the new short jacket. Mr. Swanson who was the winner of the MBTA's first Bus Roadeo in the Summer, is an operator out of the Cabot Garage; Mr. Lawrence is an inspector.

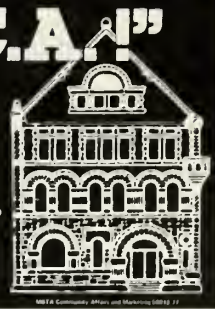


"Take me to the I.C.A.!"

The Institute of Contemporary Art
gallery exhibitions • paintings 955 Boylston St. Boston
sculpture • film • theatre
concerts • dining

Take the greenline **T** to Auditorium station.

2 for 1 admission for MBTA passholders!

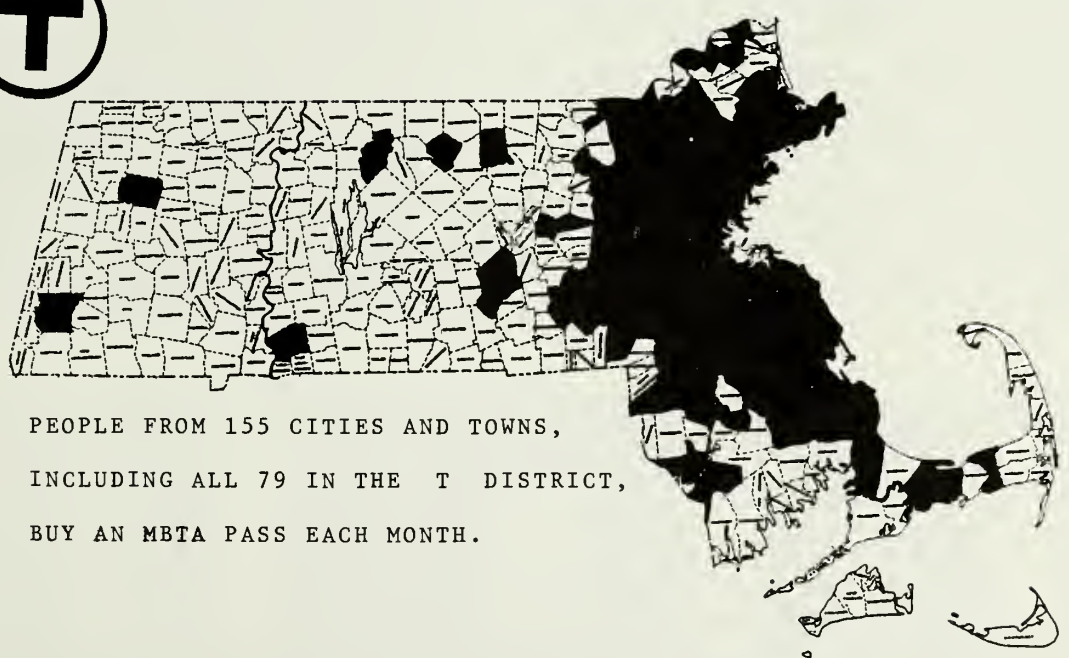


MBTA PASSHOLDERS, using one of these six types of passes, left, increased 54 percent in 1977 while participating employers increased 114 percent. Passholders were offered discounts by the Institute of Contemporary Art, top, and the New England Aquarium, right.

HOW DO YOU GET TO THE AQUARIUM?



T TAKE THE BLUE LINE. AQUARIUM STATION.



PEOPLE FROM 155 CITIES AND TOWNS,
INCLUDING ALL 79 IN THE T DISTRICT,
BUY AN MBTA PASS EACH MONTH.

\$1.25

Car-Free in Boston

Car-Free in Boston

A User's Guide to Public Transportation
in Greater Boston and New England

Association for Public Transportation

APT

music under boston — july & august

harvard station
park street station
government center station

CAR-FREE in Boston, top left, is a paperback guide to public transportation in Boston, published in conjunction with the Association for Public Transportation. The poster, top right, promoted live music at three subway stations. The two car cards, posted in MBTA vehicles, promoted senior citizens' half fares and a "no smoking" campaign, below.

Half a ride on us:



With this card, persons over 65 and the handicapped are entitled to ride for half fare on the MBTA.

For details, call or visit: Senior Citizens/Special Needs Office,
Government Center Station.
Mon.-Fri. 9 a.m.-3:30 p.m.



MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

Absolutely no ifs, ands or butts.

Mass. Gen. Laws Ch. 272, Sect. 43A

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY
Community Affairs & Marketing Dept.



When did you last visit

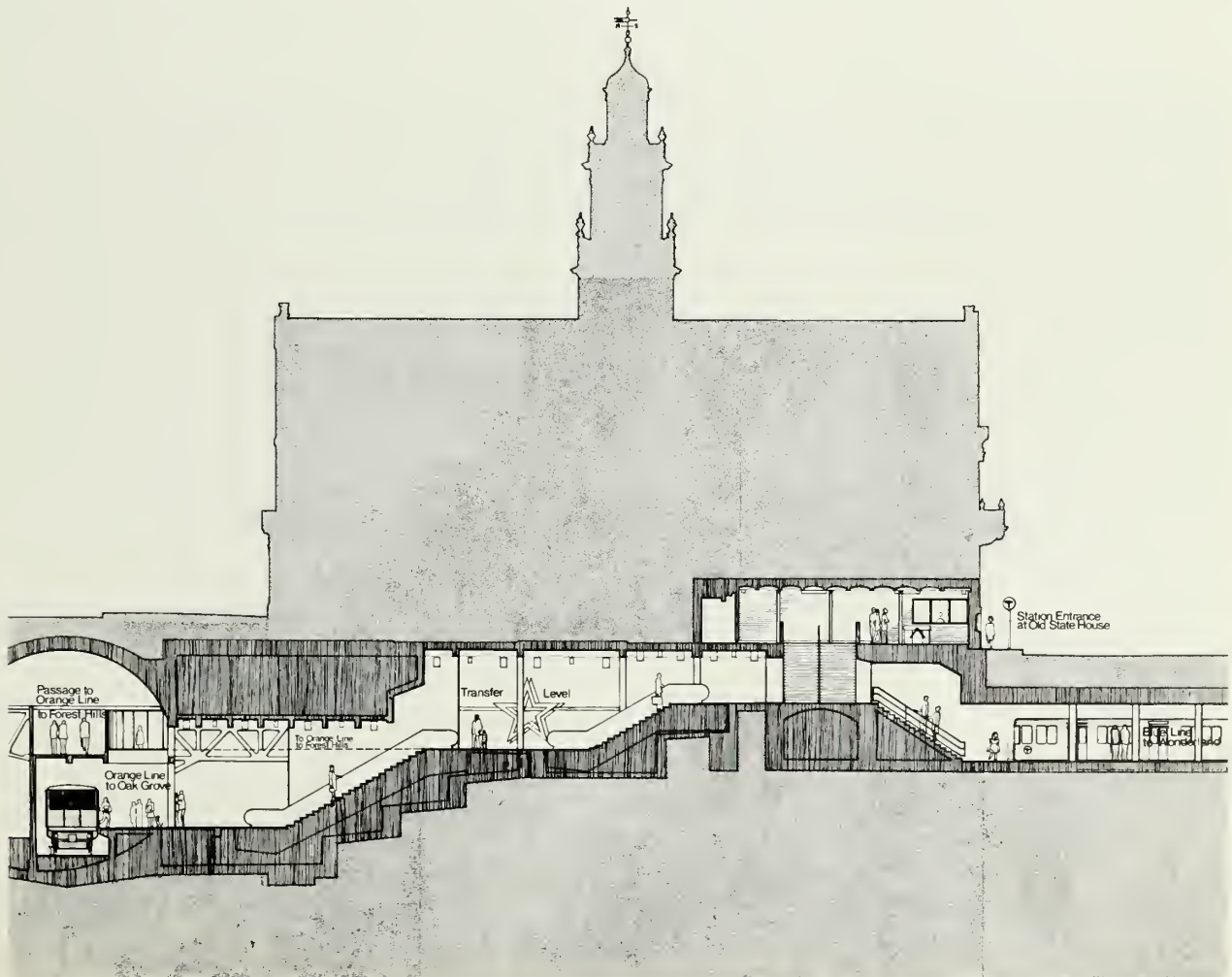
The Old State House?

(It's at STATE on The MBTA.)

Boston
National
Historical
Park

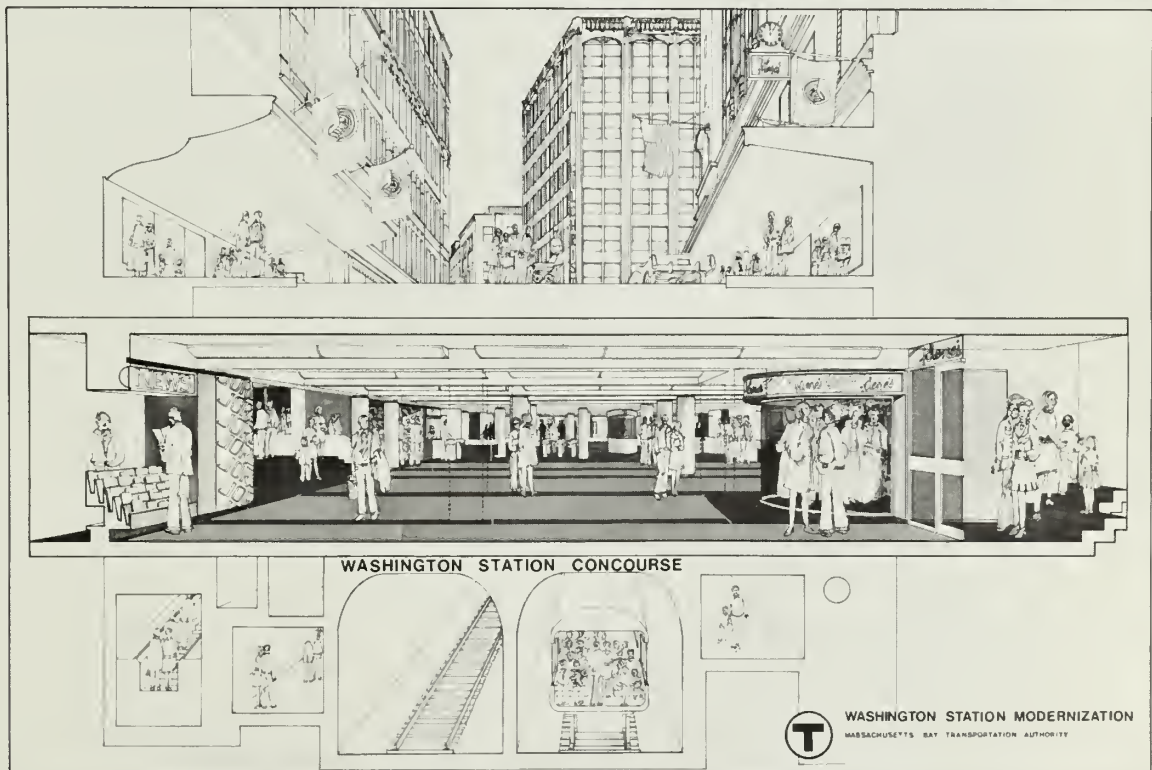


CAR CARD, top, published by the National Park Service, promotes visit to Massachusetts Old State House under which the MBTA's State Station is located. Below, the profile shows the Orange Line tunnel, left, and the Blue Line tunnel, right, beneath the Old State House.





ART AT AUDITORIUM Station depicts a Cambridge and Roxbury streetcar enameled on stainless steel. Modernizing of this Green Line station was completed in August.



NEW CONCOURSE with mini-shopping mall at Washington Station, shown in this artist's drawing, is part of the project to modernize this heavily-patronized station. The profile shows the street level, above, and the Red Line, below.



FOUR GENERATIONS of Boston streetcars were displayed together at the Riverside Carhouse May 5. Left to right, they are: No. 3409, a new Light Rail Vehicle, built by the Boeing Company in 1976; No. 3072, a Presidents' Conference Committee (PCC) car built by the Pullman Company in 1944 for the Metropolitan Transit Authority and rebuilt in 1976 by MBTA engineers and craftsmen at the Watertown Carhouse; No. 5159, a "Type 3" Boston car built for the Boston Elevated Railway in 1907 by the St. Louis Car Company and converted in the 1930s to its current use as an MBTA snowplow, and No. 396, a 25-foot box car on loan to the Public Broadcasting System from the Seashore Trolley Museum, Kennebunkport, Me., and first used by the Boston "E1" on its Allston line in 1900.

(Norton D. Clark photo)



1977

THIRTEENTH ANNUAL REPORT

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THE YEAR IN PICTURES

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COVER: MBTA RAIL SYSTEM MAP shows 162 rapid transit and commuter railroad stations. Photos are model of planned Alewife Station on the Red Line Northwest Extension, upper left; new Oak Grove Station on the Orange Line, upper right; Light Rail Vehicle on the Green Line, lower left; and new locomotive ordered for the Purple Line (commuter railroad), lower right.





MASSACHUSETTS
BAY
TRANSPORTATION
AUTHORITY

Board of Directors
50 High Street, Boston, Mass. 02110

March 31, 1978

His Excellency The Governor, The General Court,
The Secretary of Transportation, and the Advisory Board
to The Massachusetts Bay Transportation Authority

The Directors of the Massachusetts Bay Transportation Authority, in accordance with the requirements of Section 5(h) of Chapter 161A of the General Laws, hereby submit the Thirteenth Annual Report of the Authority covering operations for the calendar year 1977.

It is the third Annual Report prepared under the present Chairman and Chief Executive Officer who assumed the responsibilities of both Chairman of the Board of Directors and Chief Executive Officer in 1975, as a result of the General Court's reorganization of the MBTA in 1973. Two board members stepped down early in 1978 after long and dedicated service: Forrest I. Neal, Jr., a member since 1967 and Presiding Officer of the Board in 1973 and 1975; and John J. McCarthy, a member since 1970. They were replaced January 3, 1978 by Claire R. Barrett, representing the Outer 65 Cities and Towns, and Theodore C. Landsmark, representing the Inner 14 Cities and Towns.

The Board would like to emphasize the following points of this 1977 Annual Report:

1. The average weekday ridership on commuter rail, rapid transit, streetcars, buses and trolley buses rose 3.7 percent in 1977, from an estimated 513,400 one-way passengers each weekday in 1976 to an estimated 532,300 one-way passengers each weekday in 1977. New vehicles (the Light Rail Vehicles), a new station on the Haymarket North extension of the Orange Line, the commuter rail alternative to driving, and improvements to the MBTA Pass Program are the principal reasons for the increase.

2. For the second consecutive year, MBTA ridership increased. Also for the second consecutive year, the MBTA did not require a supplementary budget. The Authority completed the year \$3.5 million under its approved 1977 budget. As you are aware, for years prior to 1976 and 1977, ridership had been declining and supplementary budgets had been a tradition.

3. The year also saw an unprecedented commitment of contracts for \$186.9 million—mostly in Federal funds—for capital improvements to the transit system serving America's eighth largest city. (Only seven major American cities have a subway rapid transit system: Boston, New York, Philadelphia, Washington, Cleveland, Chicago and San Francisco.) The capital investments included a record \$104 million in construction contracts for new public transportation facilities, generating about 2,500 man-years of work in the construction industry. Another \$39.8 million was invested in new equipment and material for these capital investments; an additional \$22.6 million was invested in engineering and design of transportation projects; and \$20.5 million was invested in improvements to existing transportation facilities done by MBTA forces or railroad forces.

4. A major expansion of the public transportation network in the Boston area occurred four days before the beginning of 1977, when the MBTA, with Federal grants and loans, purchased the Boston & Maine Corporation's track, equipment and facilities in eastern Massachusetts. Thus, Boston's commuter rail network, which had been permitted to decay over the past three decades as a matter of national policy of stressing the automobile over railroads, finally came completely under public control, through the MBTA. The MBTA had purchased the Penn Central tracks in Massachusetts in 1973. The public takeover of the commuter railroad system occurred more than 58 years after the Public Control Act of 1918 brought the rapid transit system of Boston under public guidance, and nearly 30 years after the formation in 1947 of a regional public transit agency, the former Metropolitan Transit Authority. The public transportation network of Boston now includes 259 route miles of commuter rail and 74 route miles of rapid transit and streetcar rails; 16 route miles of trackless trolleys; and 711.2 route miles of buses; 90 commuter rail stations in 46 communities and 72 rapid transit and streetcar stations in nine communities. With public control, the MBTA was able to save about a million dollars a year by having one rail operator (the Boston & Maine) operate the commuter rail service from both North Station and South Station, and was able to get Federal funds to begin the process of rebuilding a vital regional resource. More than 35 miles of commuter rail roadbed improvements were made on the South Acton Line and the Franklin and Gloucester Branches in 1977. In 1977, the MBTA ordered 25 new Pullman Standard coaches and five new locomotives. All these vehicles--due to arrive beginning in 1978--were funded 80% by Federal funds from the Urban Mass Transportation Administration.

5. The positive reaction of the public to new vehicles, new facilities and new programs is encouraging as we contemplate more improvements in 1978: the first of 70 new Blue Line cars will arrive this Fall to replace the 1923 and 1952 cars that have served the people of East Boston and Revere for so long; more LRVs will be going into service on all four branches of the Green Line; new commuter rail vehicles will be arriving; and 90 more new buses will be arriving in 1978. In 1979, the first of 120 new Orange Line cars will be arriving in Boston and the MBTA hopes to open the Red Line South Shore extension from Quincy Center to Braintree Station. Another order of 90 to 100 buses is expected. Combined with a program to rebuild 50 of the old Green Line streetcars and all 88 of the 16-year-old blue-painted Red Line cars on the Harvard-Ashmont route, all the rapid transit rail vehicles should be either new or rebuilt in 1981.

6. Improved systems, procedures and more efficient working space were quieter accomplishments of 1977 which continued the internal improvements of the previous two years. Crime dropped for the second straight year. After a 25 percent decrease in various crimes in 1976, there was a further 21 percent decrease in the same crimes in 1977. Following an arbitration, management won the right to give qualifying tests to carhouse repairmen (third class) rather than determine whether they would repair vehicles simply because they were senior employees, regardless of their mechanical aptitude or skill. New supervision and some renovations to the 19th century Reservoir Carhouse created more efficient work space and habits, which paid dividends in the quicker recovery of the old Green Line streetcars after the Storms of the Century in January and February of 1978. Administrative offices were centralized at 50 High Street in Boston, across the street from the Operations Center in a May, 1977 move which increased management efficiency and communication. A new lottery system was instituted in June to select entry-level jobs, such as bus or streetcar operator, porter or collector, resulting in an increase in the number of women and minorities holding these jobs.

Employee morale received a boost through the first Annual Bus Roadeo, which selected the top surface division employee by driving ability and general record; by the introduction of a new uniform to replace the 1963-style uniform; and through pride in the performance, and public acceptance, of the Light Rail Vehicles. Two steps toward the development of a better information system were taken in 1977. An expanded Customer Service telephone system was established with a new number, 722-3200. The number was widely publicized, and circuits overloaded during crises, but the capability to answer calls was increased twenty times. Another improvement in information to passengers came with a new position at Central Control in the Community Affairs Department, filled by a veteran transportation department employee. He is solely responsible for making announcements in stations to inform passengers about the transportation service.

OTHER HIGHLIGHTS OF 1977

Light Rail Vehicles Meet Goal

The Light Rail Vehicles (LRVs), the first new generation of American streetcars since 1952, were first introduced to the Green Line's Riverside Branch in the snowstorm of December 30, 1976. Major problems began to show up in April 1977 and the manufacturer, Boeing Vertol, and the MBTA then worked out a "modification program" to improve the vehicle. By the end of the year, the modification program had met the goal of having 80 percent of the LRVs in service during rush hours. The response by riders to the new vehicles was encouraging. Revenue figures showed a 19% increase in riders on the Riverside Line. The cars were universally praised for the smoothness and quiet of the ride. The Riverside Line had both the old PCC streetcars--designed by the Presidents' Conference Committee of presidents of transit companies throughout the nation in the 1930s--and the LRVs in mixed service until mid-December, but many people would let a PCC streetcar go by in order to catch an LRV in the subways. The LRVs also were used to give added service from the tunnel entrance at Commonwealth Avenue and Blandford Street, near Boston University, through the subway to Park Street, Government Center or Lechmere.

Pass Program Grows

Improvements in the MBTA Pass Program also brought in new riders. After an experiment with a higher monthly cost and greater travel restrictions cut passholders from 22,000 in 1976 to 14,000 in March 1977, the pass was made less costly and more convenient. Enrollment by the end of the year had swelled to 23,531 with 518 employers. About one out of 12 riders was a passholder at the end of the year. The Pass Program bases the monthly cost on 18 days of commuting but permits unlimited use at anytime. Fifteen employers are now subsidizing the pass as a fringe benefit to their employees. Commuter rail customers were provided with a free 25¢ rapid transit pass on the back of their commuter rail monthly commutation ticket beginning in April. Sales went up following that move, which permitted riders a free transfer at North Station, South Station and Back Bay Station and use of the 25¢ rail system whenever they wished. Ridership on commuter rail increased about three percent despite the poor state of the trains, many of which operated without heat or lights because there was such a demand for commuter rail transportation.

Public Investments

The LRVs and Oak Grove Station are two of the benefits of the extensive public investment program by the Federal, state and local taxpayers. Since 1975, more than \$498 million in Federal grants and loans have been approved, compared to \$348 million between 1964 and 1974. This capital investment generally has ranged from 67 percent to 80 percent in Federal funds, with the balance in 40-year state construction bonds authorized by the Massachusetts Legislature. In 1977, construction on the \$90 million South Shore Extension from Quincy Center to Quincy Adams Station in South Quincy and Braintree Station in South Braintree was finally started. An agreement was reached with Quincy officials to depress a portion of track in that city. In January, then Secretary of Transportation William Coleman made a commitment in principle to transfer \$300 million in Interstate Highway Funds--reserved for Massachusetts' now defunct I-95 and I-695 Inner Belt highways--to pay for the Red Line Northwest and the Southwest Corridor Orange Line projects. The \$450 million Red Line Northwest Extension project itself was approved for construction to Alewife. Construction in late December began on the temporary Harvard Station at Brattle Square in Cambridge, necessary to permit the new tracks to curve up Massachusetts Avenue towards Porter Square, and then on to Davis Square in Somerville and Alewife Station in Cambridge, near the Arlington and Belmont lines. Following studies, and a controversy in the Town of Arlington, the Federal government said engineering for rapid transit towards Arlington should be continued but requested that lower cost alternatives to rapid transit also be studied. Construction began on a contract to upgrade the Midland railroad between Readville and South Station. It is required as a substitute for the main line beginning in 1979 when the Orange Line relocation work will force the closing of the main line tracks from Readville through Back Bay Station. Community requests for new stops at relatively low fares along the Midland Branch were found to be feasible within the commuter rail fare policy and the construction budget. Three stops will be built at Hyde Park/Fairmount, Morton Street/Woodrow, and Uphams Corner. Work also began on a \$20 million contract to build the second half of the South Cove Tunnel, which was first built in the late 1960s when the entire South Cove area was being redeveloped by Tufts University and the City of Boston. The South Cove Tunnel will connect the Orange Line subway to the Southwest Corridor. Engineering and design work continued on the Southwest Corridor Orange Line project and its eight proposed new stations. Station modernization work was completed on the Haymarket Station and the Auditorium Station, and work was proceeding on the Park Street, State Street and the Washington Street modernization. A total of \$64 million is planned to be invested in track, structures, station and information improvements. Major projects to rebuild and upgrade the MBTA's electric power system got underway, as did a major new bus garage and repair facility at Charlestown.

B & M Takes Over South Station Service

On January 7, 1977, Conrail posted notices that it would discontinue its operation of the South Station commuter rail service unless the MBTA increased the subsidy by an amount 92 percent higher than had been paid to Penn Central. The MBTA, seeking to continue the service at less cost, began negotiations with other carriers. On February 18, Conrail pledged its cooperation for a smooth takeover of the service by another rail operator, and on February 22, the MBTA selected the Boston & Maine as the operator for the South Station service as well as the North Station service it had always operated. On Sunday and Monday, March 13-14, service was suspended and the MBTA arranged substitute Monday transportation with private bus companies. On March 15, the Boston & Maine Corporation, under a new contract with the MBTA which saved the public money on both the North Station and South Station operations, began running all commuter rail service.

SUMMARY OF THE NET COST OF SERVICE
JANUARY 1, 1977 - DECEMBER 31, 1977

The Authority's net assessable cost of service to the 79 cities and towns, which will be assessed to them in November, 1978, was \$141,706,566.16 as of this date. It must be noted that this amount could be reduced -- to \$78,974,566.16 -- by additional state aid of \$62,732,000. which is awaiting action (House Bill No. 1) by the General Court. Such additional state aid was received in 1973, 1974, 1975 and 1976.

Total income in 1977 amounted to \$61,813,270.75 and total current expenses were \$247,753,922.36 leaving a cost of service in excess of income of \$185,940,651.61.

The difference between the cost of service in excess of income and the net assessable cost of service resulted from state reimbursement for the Authority's debt service; additional state aid for the railroad service outside the MBTA district; and Federal Operating Assistance of \$22,200,066.

In addition to the net assessable cost of service, there are two other items which must be considered by the 79 cities and towns in their settlement in November, 1978 of their 1977 accounts with the Commonwealth. These are the accounts:

	<u>WITHOUT ADDITIONAL STATE AID</u>	<u>WITH ADDITIONAL STATE AID OF \$62,732,000. AS PROVIDED IN HOUSE BILL NO. 1</u>
Net Assessable Cost of Service	\$141,706,516.16	\$78,974,566.16
Interest Charged by State Treasurer on Temporary Borrowings (Estimated)	\$ 5,290,000.00	\$ 5,290,000.00
Expenses of Boston Metro- politan District	\$ <u>16,000.00</u>	\$ <u>16,000.00</u>
Net Cost to Communities	\$147,012,516.16	\$84,280,566.16*

*House Bill No. 1, the state budget for Fiscal Year 1979 beginning July 1, 1978, provides additional contract assistance of \$62,732,000., subject to legislative approval and appropriation.

The following page shows the Authority's net cost of service including all elements of cost for calendar year 1977.

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

STATEMENT OF NET COST OF SERVICE
CALENDAR YEAR JANUARY 1, 1977 TO DECEMBER 31, 1977

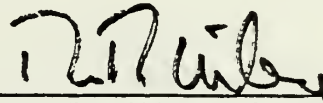
	<u>1977</u>
Income:	
Revenue from Transportation	\$ 53,472,738.57
Revenue from Other Rwy. Operations	1,964,693.92
Non-Operating Income	4,579,221.02
Gas & Diesel Tax Reimbursement	412,409.05
Reimbursement from Outside District	<u>1,384,148.19</u>
TOTAL INCOME	61,813,270.75
Operating Wages and Fringe Benefits:	
Wages	115,740,938.71
M.B.T.A. Pensions	15,643,047.68
Social Security Taxes	5,952,721.52
Workmen's Compensation	1,735,564.32
Accident and Sickness Insurance	402,826.30
Group Life Insurance	871,645.18
Blue Cross - Blue Shield	12,119,459.58
Unemployment Insurance	15,736.00
Uniform and Work Clothes	278,211.19
Fringe Benefit Cost Capitalized - Credit	<u>(2,883,560.25)</u>
TOTAL OPERATING WAGES AND FRINGE BENEFITS	149,876,590.23
Material and Other Items	20,023,266.41
Injuries and Damages	2,517,864.02
Interest on Unfunded Debt	4,461,450.52
Fuel	13,134,718.00
Taxes (Other than included above)	764,170.39
Railroad Commuter Subsidy	26,691,776.45
Rapid Transit Inc. Subsidy	<u>417,645.20</u>
TOTAL OPERATING EXPENSES AND TAXES	217,887,481.22
Fixed Charges:	
Interest on Funded Debt (M.T.A.)	3,833,838.61
Interest on Funded Debt (M.B.T.A.)	14,240,309.11
Payment on Funded Debt (M.T.A.)	3,219,259.28
Payment on Funded Debt (M.B.T.A.)	8,501,748.25
Cambridge Subway Rental (M.T.A.)	5,758.32
Miscellaneous Debits (M.T.A.)	35,038.71
Bank Service Charges (M.B.T.A.)	<u>30,488.86</u>
TOTAL FIXED CHARGES	29,866,441.14
TOTAL CURRENT EXPENSES	247,753,922.36
COST OF SERVICE IN EXCESS OF INCOME	185,940,651.61
Less:	
State Fin. Contract Assistance:	
Chapter 161A of G.L. (Sec. 28)-M.T.A.	3,000,000.00
Chapter 161A of G.L. (Sec. 28)-M.B.T.A.	18,532,454.88
Chapter 859, Acts of 1975 - M.B.T.A.	-
Chapter 283, Acts of 1976 - M.B.T.A. (RR)	295,068.57
Chapter 363A, Acts of 1977-M.B.T.A. (RR)	206,496.00
Chapter 363A, Acts of 1977 - M.B.T.A.	-
House Bill #1 Pending Approval	62,732,000.00
Federal Operating Assistance:	
Section 5	16,861,566.00
Section 17	<u>5,338,500.00</u>
TOTAL ASSISTANCE	106,966,085.45
NET ASSESSABLE COST OF SERVICE	\$ <u><u>78,974,566.16</u></u>

The balance sheet and statement of long-term debt of the Massachusetts Bay Transportation Authority as of December 31, 1977, and the related statements of revenue and cost of service, unreimbursed cost of service, and source of disposition of funds for the fiscal year ended December 31, 1977, together with notes relating to these financial statements, are appended to this report.

Respectfully submitted, March 31, 1978

Board of Directors

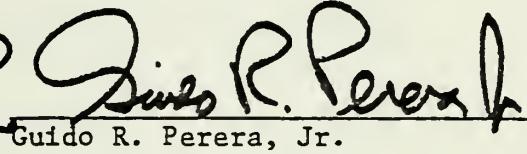
Massachusetts Bay Transportation Authority



Robert R. Kiley, Chairman



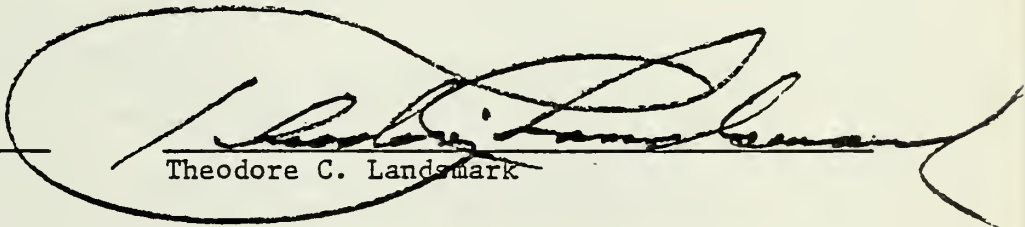
Richard D. Buck



Guido R. Perera, Jr.



Claire R. Barrett



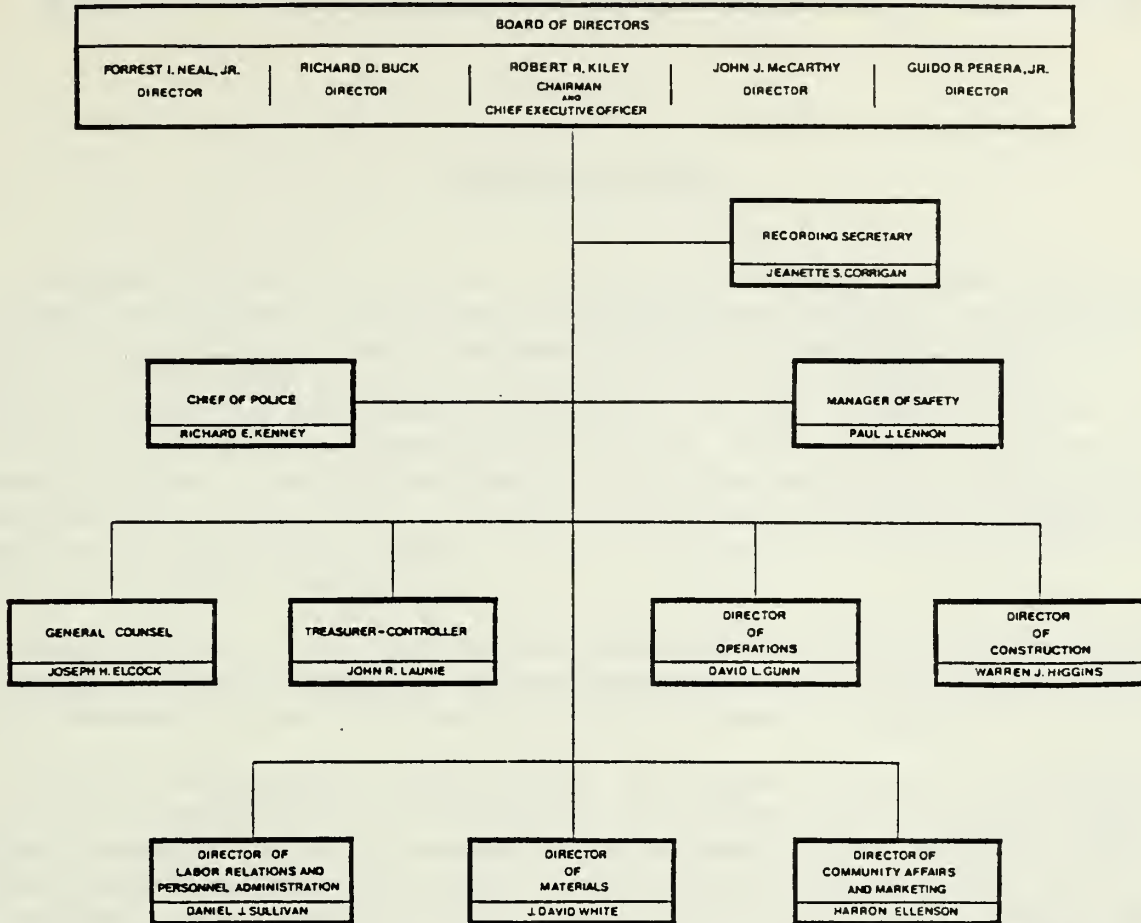
Theodore C. Landmark

(T) STATISTICS 1977

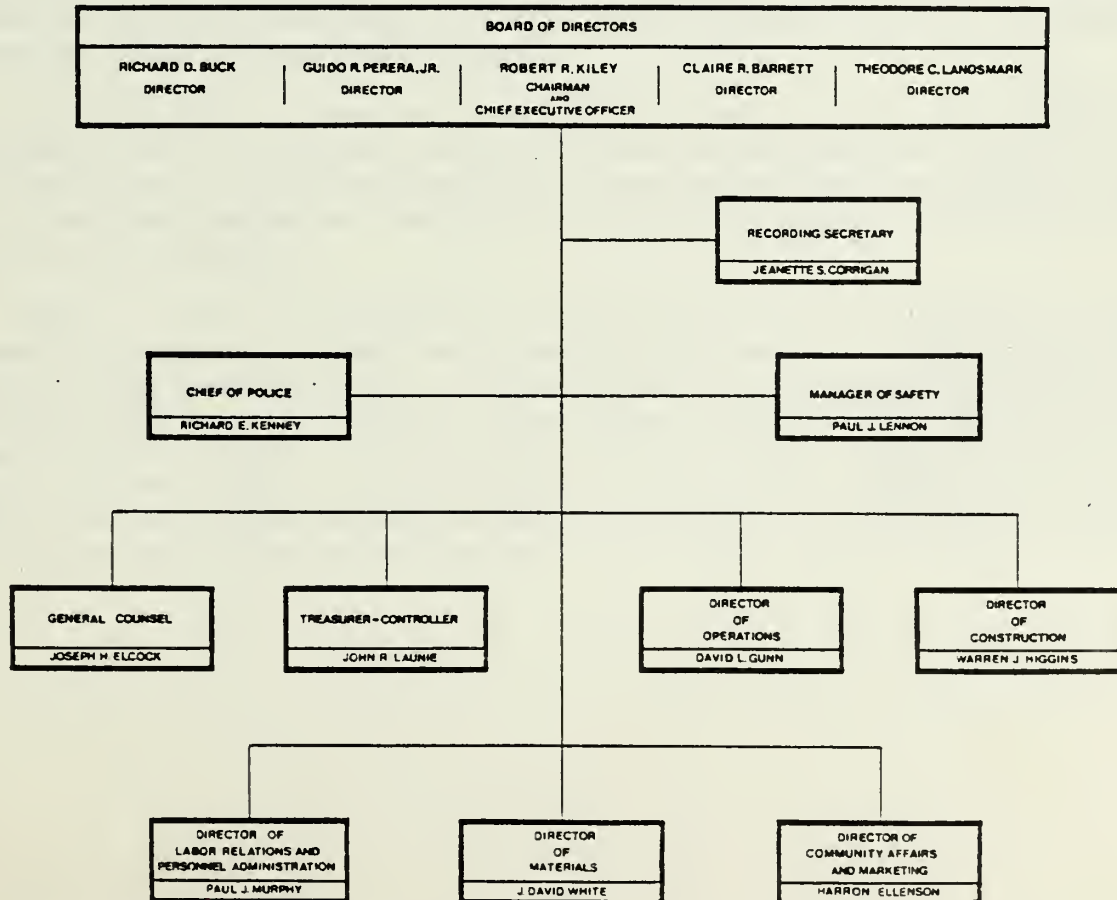
Population of 79 Communities in (T) District (1970 U.S. Census)	2,763,410
The (T) operates about 1,400 vehicles travelling 150,000 miles each weekday.	
Number of Bus Routes	177
Number of Streetcar Routes	5
Number of Rapid Transit Routes	3
Number of Trackless Trolley Routes	4
Number of Commuter Rail Routes	10
Buses	954
Streetcars (244) and Light Rail Vehicles (65)	309
Rapid Transit Cars	334
Trackless Trolleys	50
Commuter Rail Vehicles: 23 Locomotives; 84 Coaches; 92 Rail Diesel Cars	199
Weekday Passengers (Estimated)	532,300
Commuter Rail	31,000
Basic (T) System -	501,300
Annual Passengers (Estimated)	154,540,000
Commuter Rail -	7,840,000
Basic (T) System -	146,700,000
Rapid Transit Stations, Including Riverside & Mattapan Lines	72
Commuter Rail Stations	90
Miles of Track (2-way) in Subway	30
Miles of Track (2-way) on Bridges, Elevated or Surface	90
Rapid Transit Route Miles (One Way)	38.9
Red Line: Harvard-Ashmont, 9.5; Harvard-Quincy, 11.7	
Orange Line: Forest Hills-Oak Grove, 10.9	
Blue Line: Bowdoin-Wonderland, 6.8	
Rapid Transit Route Miles Under Construction (One Way),	6.4
Proposed Rapid Transit Route Miles (One Way),	9.1
Streetcar Route Miles (One Way)	35.1
Riverside-North Station, 12.5; Arborway-Park, 5.5; Lake Street-Lechmere, via Commonwealth Ave., 8.0; Cleveland Circle-Lechmere, via Beacon Street, 6.6; Ashmont-Mattapan, 2.5	
Trackless Trolley Route Miles (One Way)	15.75
Bus Route Miles	711.2
Commuter Rail Route Miles (One Way)	259
North Station: to South Acton, 25; to Lowell, 25; to Woburn, 10; to Reading, 12; to Ipswich, 28; to Rockport, 35.	
South Station: to Framingham, 21; to Needham, 12; to Franklin, 28; to Stoughton, 19; to Providence, 44.	
Commuter Rail Route Miles Under Construction (One Way),	6.9
Total Route Miles Operated	1,059.95
Bus Revenue Miles	22,564,151
Rapid Transit Revenue Miles	10,291,379
Streetcar Revenue Miles	5,167,125
Trackless Trolley Revenue Miles	865,803
Total Revenue Miles Operated	38,888,458
Commuter Rail Car Miles	5,231,788
Employees	6,344
(Capital Budget: 387;	
Operating Budget: Permanent & Temporary - 5,957)	
Collective Bargaining Units	28

ORGANIZATION CHARTS

1977



MARCH 31, 1978



REPORTS FROM THE DEPARTMENTS

EXECUTIVE OFFICE

The Executive Office consists of the Office of the Chairman and Board of Directors; the Office of the Budget and Operations Analysis; and the Office of Administrative Services, which includes the Public Information Office. Early in 1978, the Equal Employment Opportunity/Affirmative Action Office was transferred from the Construction Directorate to the Executive Office. The Director of EEO/AA will report directly to the Chairman who also serves as Chief Executive Officer. The EEO/AA Director will also maintain a "dotted line" responsibility to the Director of Labor Relations and Personnel Administration on matters related to employment and to the Director of Construction on functions related to contract compliance.

During 1977, the Executive Office continued its efforts, begun in 1976, to strengthen planning, budgeting and reporting systems. As a result, for the second consecutive year, the Authority did not need a supplementary budget.

With all departments participating, the Office initiated the development of a five-year business plan for the Authority. These efforts proved valuable in involving several levels of management in systematic goal-setting, development of performance measures, and analysis of operating requirements over a multi-year period. In a related project, the Office led the development of a management information systems plan for which Federal funding from the Urban Mass Transportation Administration (UMTA) was requested. The Office also created a system of monthly financial reporting giving department heads the opportunity to monitor their budgets more closely.

Executive Office staff resources enabled the Authority to undertake special projects, such as a thorough analysis of work scheduling and control, done at the Cabot Maintenance Center in conjunction with Operations Planning, and establishment of an Asset Marketing Committee to explore the MBTA's non-transit assets for their income potential.

Again in 1977, the Assistant to the Chairman and the Director of Public Information continued to work with the Legislature, the Advisory Board, the news media, and the general public. It was in response to inquiries to the Public Information Office, for instance, that "Music Under Boston", the performances of musicians at three subway stations, was initiated. The idea has since been copied in other cities. Major efforts of the Public Information Office included keeping the news media advised on daily operations and construction activities and preparation of the Annual Report.

OPERATIONS DIRECTORATE

To carry on its responsibility to provide transportation services for the 532,300 daily passengers, the Operations Directorate in 1977 opened a new Orange Line station at Oak Grove in Malden and initiated several programs to improve service reliability and equipment availability.

The Oak Grove Station, the sixth and last station on the Orange Line's Haymarket-North Extension, was opened for revenue service on Saturday, March 19. Two days later it was dedicated at ceremonies attended by neighboring residents and federal, state and local officials.

The MBTA's newest equipment, the Green Line's Light Rail Vehicles (LRVs), a highly sophisticated modern streetcar, completed first-year operations, gradually improving in reliability and availability so that by year's end 65 had been accepted. Early in 1977, however, the Authority recognized that the car was not a proven vehicle and required significant development before it could achieve efficient passenger operations. Consequently, LRV maintenance and development was consolidated under a new superintendent of LRV operations with full responsibility to oversee a two-to-three-year effort to develop a reliable and economic vehicle. Eighty percent UMTA funding for this effort has been requested in a \$7.2 million grant application.

Two UMTA-funded car reconstruction programs were inaugurated. One was to build 50 Presidents' Conference Committee (PCC) cars and the other to rebuild 88 Red Line Cambridge-Dorchester cars. The first rebuilt PCC was ready to return to service in January 1978 with 20 more expected during 1978. The first prototype rebuilt Red Line cars are scheduled to be completed in mid-1978.

A program of overhauling the traction motors of the Red Line South Shore cars with operating funds and installing air compressors purchased with UMTA funding was undertaken as these cars began showing signs of age. For 1978, a program to overhaul air brakes, control equipment, trucks and other critical components is planned.

In preparation for the arrival in mid-1978 of the first four of the 70 new Blue Line cars, a training program for carhouse repairmen was developed, following the pattern of the LRV training program for carhouse repairmen specialists.

A five-year program to upgrade standards in bus availability, reliability, cost effectiveness and vehicle appearance was developed along with a 2,000-mile safety inspection program. Maintenance procedures to be followed at all rapid transit carhouses and the Everett Shops were also developed.

In July, the Authority was forced to shut down power generation at its 76-year-old Lincoln Power Station because of the age of both the plant and the equipment. At that time, all operations were transferred to the South Boston Power Station which began generating power around the clock every day. Several UMTA-aided improvements programs were initiated to rehabilitate the 66-year-old South Boston power plant to prolong its life for five years until the power improvements program is completed.

The Commuter Rail Department was reorganized to administer service contracts and the UMTA-funded Commuter Rail Improvement Programs. Early in the year, the service contracts were with the Boston & Maine Railroad operating out of North Station and Conrail for service out of South Station. On March 15, however, the Conrail service was taken over by the B & M, thereby bringing all commuter railroad service under one operator.

On May 1, a zone fare system was adopted on trains operating out of South Station, resulting in a uniform fare system for all commuter railroad services for the first time. An innovation during the year was the addition of a 25-cent rapid transit pass to the reverse side of the railroad commuter's monthly unlimited ticket.

Under two UMTA-funded Commuter Rail Improvements Programs, roadbed, track, station and parking lot improvements were begun on the Franklin Branch to the south, the South Acton Line to the west, and the Gloucester Branch to the northeast. Groundbreaking ceremonies were held at South Acton on August 8 and at Norwood Central Station on the Franklin Branch on August 25.

Using the guidelines and standards set in the Service Policy for Surface Lines, the Operations Planning Department throughout the year routinely allocated resources to services where improvements were warranted or adjusted service on substandard routes. A similar Service Policy for Rail Lines is now being developed for submission to the Advisory Board in late 1978.

In April, THE RIDE, a demand-responsive service to improve the mobility of the transportation handicapped, began operations as a test program in Brookline, Brighton, Allston, Kenmore, the Fenway, and part of the South End section of Boston. Also in April, a series of fare adjustments and improvements, developed by the Fare Review Task Force, were implemented, including increases in express bus fares, equalization of suburban and urban basic fares, and free transfers between downtown rapid transit stations and commuter rail stations for monthly ticket holders.

Contract bus service, being provided in Hingham and Hull by Hudson Bus Lines, became a part of the MBTA system in the Fall, following a six-months trial contract that started in April for service as a replacement for a private carrier that ceased operations in 1976. Scheduled to become a part of the MBTA system on January 1, 1978, was contract service by Michaud Bus Lines in Salem and Peabody, following an economic feasibility study of such service that had been requested by the two cities. The Hudson and Michaud contracts are the first private bus company contracts since the one in 1968 with Rapid Transit Inc. which serves Winthrop. Experimental private bus service continues in Bedford, Natick and Dedham.

Other Operations Directorate activities during the year included:

Modifying the overhead trolley wire for LRV operation on the Riverside Line, in the Central Subway to Northeastern University on the Huntington Avenue Line, on the Lechmere Viaduct, along Beacon Street and in the Reservoir Yard; removing the Canal Street Loop and building three stub end tracks for LRV operations to North Station, rebuilding about 5,900 feet of streetcar tracks in Centre Street, Jamaica Plain, as part of the Department of Public Works program to rebuild the street.

Designing and supervising installation of radio systems for municipal fire departments and the Red and Green Lines, the MBTA Police Department, and commuter rail diesel cars.

Designing and implementing a cab signal package for the Red Line's South Shore cars, designing and assembling a similar package for the Red Line's Cambridge-Dorchester cars, and preparing specifications for the car signal package for the 120 new Orange Line cars.

Designing a new signal system for the Red Line's temporary Eliot Station, under construction for use while a new Harvard Square station is built as part of the Harvard-Alewife Extension.

Renewing about 4,000 feet of track on the Red Line's West Boston Bridge and preparing a federal grant application to UMTA for a \$63.2 million, multi-year track renewal program to be undertaken systemwide.

Installing 45 new bus shelters; painting 21 stations, and designing an additional 150-car parking lot that was opened on the west side of North Quincy Station on June 2.

Of interest were two non-service related activities during the year. One was the first Bus Rodeo which focused on driving skills and safety with the MBTA winner competing at a national competition sponsored by the American Public Transit Association. The other was researching, designing and ordering new uniforms for about 3,500 operating personnel, the first since 1963 and which include a new Winter outer coat and hat.

New equipment ordered during the year under various UMTA grants included five locomotives and 25 coaches; 90 turnpike and city buses; nine 4-wheel drive suburban type radio equipped vehicles, seven garage trucks, two small snowplows and other non-revenue vehicles.

CONSTRUCTION DIRECTORATE

The MBTA was awarded federal grants totaling \$152,163,632 by the Urban Mass Transportation Administration (UMTA) in 1977. Capital and technical grants of about \$130 million assisted the Authority in continuing its program of expansion and modernization and nearly \$22 million in operating assistance for the MBTA system, including commuter railroads, helped defray the cost of service assessable on the 79 cities and towns in the transportation district.

Although federal aid for 1977 was less than the record amount received in 1976, the total compares favorably with all other years in the past decade.

Major capital grants included: \$42 million for the Red Line Northwest Extension from Harvard Square, Cambridge, to Alewife Brook Parkway at the Cambridge-Belmont-Arlington boundaries, allowing the MBTA to proceed with final engineering, first-phase land acquisitions, and construction; an additional \$22 million to continue construction of the South Shore Extension of the Red Line from Quincy to Braintree; nearly \$13 million (two grants) toward the purchase of new buses and the rehabilitation of 50 Presidents' Conference Committee (PCC) cars; and nearly \$33 million (three grants) for improvements to the power distribution system and the power generating plant at South Boston.

In addition, UMTA approved an additional \$10 million technical studies grant to continue work under the Unified Work Program. This grant allowed continuation of pre-grant engineering for the Red Line Northwest Extension and the Orange Line Relocation projects and to undertake studies to improve the 259-mile commuter railroad system as well as public transportation on the North Shore.

Indicative of the high level of activity of the Construction Directorate during the year was the award of 38 construction contracts with a value of more than \$101 million. In addition, orders were placed for some \$37 million worth of equipment, including 90 turnpike and city buses, 25 railroad coaches and five locomotives, and capital materials, such as turbine generators and steam boilers for the South Boston Power Station, miscellaneous tools and materials for the programs to modernize 88 Red Line cars and rehabilitate 50 PCCs, bullet-proof collector's booths, trolley wire, and track and signal materials.

The largest electrical contract ever awarded by the MBTA--and possibly in the nation--was for furnishing and installing AC and DC switchgear equipment, rectifier transformers, power rectifier and all auxiliary equipment for two switching stations and 15 rectifier substations. This \$17,787,113 contract represents the first major step in converting the MBTA's existing 25-cycle power system to a 60-cycle system that could, in the future, accommodate purchased power.

The largest single construction contract award in 1977 was for the completion of the South Cove Tunnel which will be the link between the existing Orange Line south of Essex Station and the relocated Orange Line in the Southwest Corridor railroad right-of-way. This contract, which amounts to \$20,600,660, is the first issued by the MBTA to include a specific goal for the employment of minority subcontractors.

A \$3.7 million contract was awarded for the reconstruction of the Midlands Division (Dorchester Branch) freight railroad line so that it can be used by MBTA commuter railroad trains and Amtrak's intercity trains during the relocation of the Orange Line to the mainline railroad right-of-way.

Several contracts totaling nearly \$36 million were awarded for the construction of the 3.2-mile Red Line Extension from Quincy to Braintree. A groundbreaking ceremony for the new Braintree Station and 1,200-car parking garage at the interchange of Route 3 and Union Street, South Braintree, was held on July 13. The remaining major contract for this project is for the Quincy Adams Station and 2,000-car parking garage near the intersection of Routes 3 and 128 in South Quincy. Construction of this complex is scheduled to begin in 1978.

Construction on another major rapid transit extension, the 2.7-mile Red Line Northwest from Harvard Square to Alewife Brook Parkway began in late 1977 with the start of construction of the Eliot Temporary Station under a \$1.4 million contract. Located at the former MBTA Bennett-Eliot Yards, near Harvard Square, this station and another temporary station at Holyoke Street will be used while a new Harvard Square Station is built. Other stations on the new extension will be at Porter Square in Cambridge, Davis Square in Somerville, and at Alewife where a 2,000-car parking garage will be built adjacent to the station.

Other construction contracts with a value of more than one million dollars were: a signal repair facility at the Cabot Maintenance Center, South Boston, \$1,071,800; a 200-bus garage and repair building at the MBTA's Charlestown property, \$9,846,729; a receiving cashier's facility at Charlestown, \$1,560,742; and structural repairs to the Orange Line elevated structure from the subway portal to Forest Hills, \$1,793,570.

While no construction contracts were awarded in 1977 under the Station Modernization Program, one station, Auditorium on the Green Line, was completed on August 31 and work progressed on modernizing Park, Washington and State Street Stations under previously awarded contracts.

The sixth and last station on the Orange Line's \$176 million northern extension was opened for revenue service on March 19 at Oak Grove, Malden, near the Melrose boundary. A dedication ceremony was held on March 21.

Two UMTA-funded Commuter Rail Improvements programs got underway during the Summer. Estimated to cost more than \$70 million, both programs are designed to improve roadbed and track, stations and parking lots on the Franklin Line, south of Boston, and the several lines serving the communities to the north and west of Boston, and to rehabilitate and acquire new equipment. Groundbreaking ceremonies were held at the South Acton Station on August 8 and at Norwood Central Station on the Franklin Branch on August 25.

FEDERAL GRANTS in CALENDAR 1977

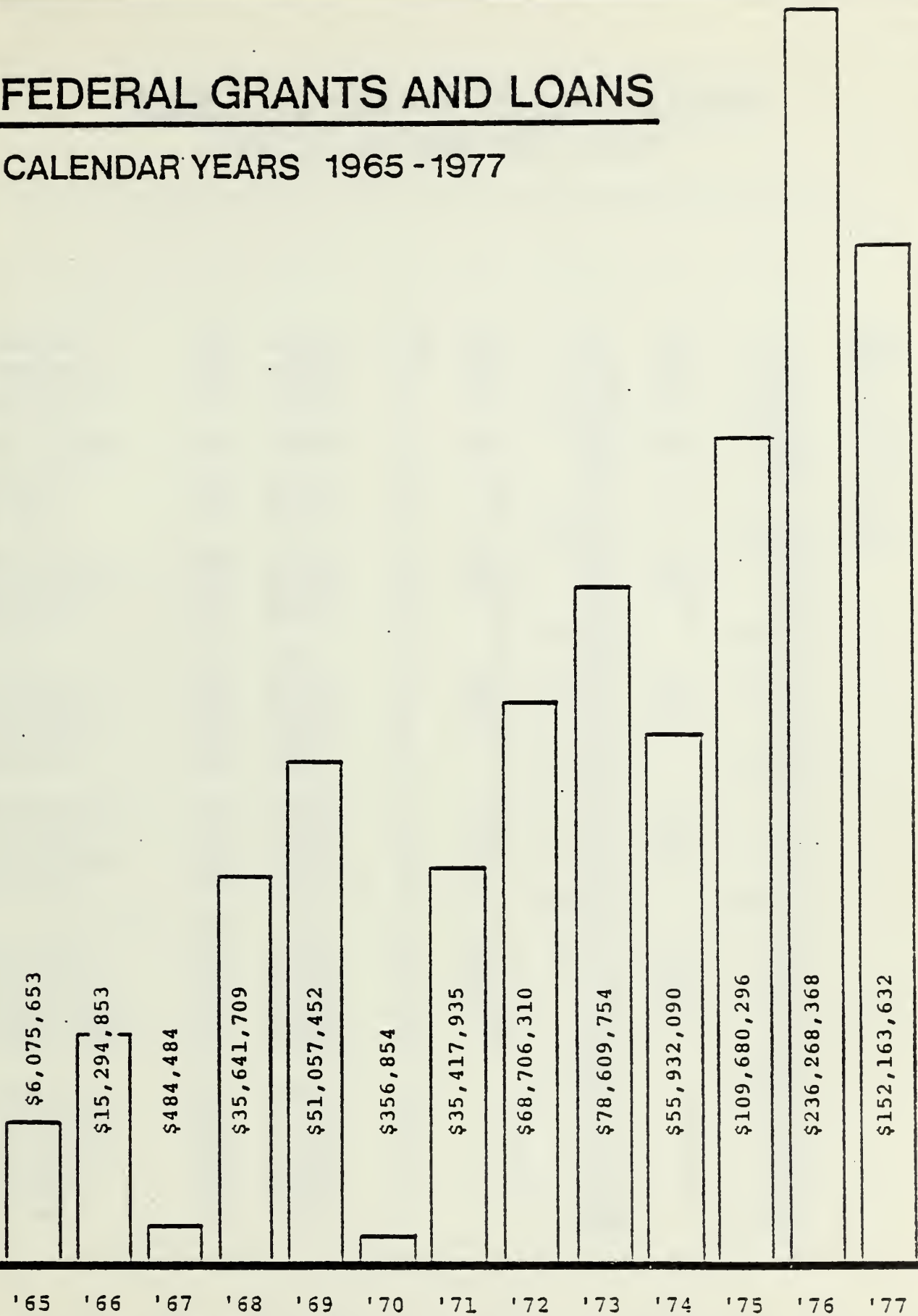
<u>Project Description</u>	<u>Date</u>	<u>Approved</u>	<u>Type</u>	<u>Federal Share</u>	<u>Local Share</u>	<u>Total</u>
Operating Asst. - Rail	5-6-77		(OA)	\$ 4,838,331 (98%)	\$ 339,807 (2%)	\$ 5,178,138
Purc. 100 New Buses, Amend.	5-27-77		(C)	6,344,000 (80%)	1,586,000 (20%)	7,930,000
Validation Study Amend. 3	6-29-77		(D)	137,902 (87%)	20,685 (13%)	158,587
Unified Work Program Amend.	8-30-77		(T) (IT)	10,000,000 (80%)	2,500,000 (20%)	12,500,000
Rehab. Comm. Rail Track & Fac.	9-30-77		(C)	2,500,000 (100%)	-----	2,500,000
Power Improvements, Amend.	10-6-77		(C)	23,480,000 (80%)	5,870,000 (20%)	29,350,000
So. Shore R.T.-Braintree, Amend.	10-6-77		(C) (IT)	22,296,080 (80%)	5,574,020 (20%)	27,870,100
Immediate Needs Power, Amend.	10-6-77		(C)	2,916,000 (80%)	729,000 (20%)	3,645,000
Rehab. 50 PCC Cars	10-6-77		(C)	6,412,384 (80%)	1,603,096 (20%)	8,015,480
Transit Efficiency Program	10-6-77		(C)	7,956,000 (80%)	1,989,000 (20%)	9,945,000
Power Cable Program	10-6-77		(C)	6,400,000 (80%)	1,600,000 (20%)	8,000,000
Red Line Northwest R.T. Ext.	11-11-77		(C) (IT)	42,009,180 (80%)	10,502,295 (20%)	52,511,475
Operating Assistance	10-14-77		(OA)	16,861,566 (11%)	143,613,012 (89%)	160,474,578
Training Grants	10-19-77		(M)	12,189 (75%)	4,063 (25%)	16,252
TOTALS				\$152,163,632	\$175,930,978	\$328,094,610

Type Code

- (C) Capital
- (D) Demonstration
- (M) Managerial
- (T) Technical
- (IT) Interstate Transfer
- (OA) Operating Assistance

FEDERAL GRANTS AND LOANS

CALENDAR YEARS 1965 - 1977



TOTAL : \$845,689,390

FEDERAL GRANTS and LOANS

FISCAL YEARS 1965-1978

UMTA FISCAL YEAR	PROJECT DESCRIPTION	DATE APPR.	FEDERAL PROJ.#	TYPE CODE	FEDERAL	SHARE	LOCAL	SHARE	INVESTMENT INCOME	TOTAL
1965	19 Station Modernization	2-15-65	MA-03-0001**	(C)	66-2/3%	\$6,075,653.	33-1/3%	\$3,037,826.	\$2,441.	\$9,115,920.
1966	30 Bus Acquisition (150)	5-23-66	MA-03-0002**	(C)	66-2/3%	3,136,654.	33-1/3%	1,568,327.	-	4,704,981.
	11 Haymarket Tunnel	6-14-66	MA-03-0003**	(C)	66-2/3%	11,997,599.	33-1/3%	5,998,800.	3,601.	18,000,000.
						<u>15,134,253.</u>		<u>7,567,127.</u>	<u>3,601.</u>	<u>22,704,981.</u>
1967	11 Haymarket Soils Instru.	10-12-66	MA-06-0008**	(D)	66-2/3%	160,600.	33-1/3%	80,300.	74.	240,974.
	12 Southwest Corridor Stu.	6-21-67	MA-09-0001	(T)	66-2/3%	484,484.	33-1/3%	242,242.	-	726,726.
						<u>645,084.</u>		<u>322,542.</u>	<u>74.</u>	<u>967,700.</u>
1968	14 South Shore R/T	3-12-68	MA-03-0004	(C)	66-2/3%	34,469,333.	33-1/3%	17,234,667.	117,000.	51,821,000.
	14 South Shore R/T	3-12-68	MA-03-0004	(R)	100%	617,000.	-	-	-	617,000.
	Training Grant	1968	MTTR-2**	(M)	75%	19,976.	25%	6,658.	-	26,634.
						<u>35,106,309.</u>		<u>17,241,325.</u>	<u>117,000.</u>	<u>52,464,634.</u>
1969	11 Haymarket North	6-24-69	MA-03-0005	(C)	66-2/3%	50,862,000.	33-1/3%	25,431,000.	-	76,293,000.
	12 Southwest Corridor Amend.	12-16-68	MA-09-0001	(T)	66-2/3%	13,333.	33-1/3%	6,667.	-	20,000.
	17 Central Area Systems Stu.	9-7-68	MA-09-0002**	(T)	66-2/3%	522,067.	33-1/3%	261,034.	-	783,101.
	11 HN Soils Instru. Amend.	6-27-69	MA-06-0008**	(D)	66-2/3%	144,971.	33-1/3%	72,486.	-	217,457.
	Service Development	6-4-69	MASS-MTD-7**	(D)	81%	35,178.	19%	8,252.	-	43,430.
	Training Grant	1969	MTTR-3**	(M)	75%	15,303.	25%	5,102.	-	20,405.
						<u>51,592,852.</u>		<u>25,784,541.</u>		<u>77,377,393.</u>
1970	Training Grant	6-15-70	MTTR-4**	(M)	75%	10,238.	25%	3,412.	-	13,650.
1971	14 South Shore R/T Amend.	5-18-71	MA-03-0004	(C)	66-2/3%	3,657,263.	33-1/3%	1,828,632.	-	5,485,895.
	16 Cabot Maint. Center	5-18-71	MA-03-0007	(C)	66-2/3%	18,800,000.	33-1/3%	9,400,000.	-	28,200,000.
	21 System Wide Mod.	5-18-71	MA-03-0010	(C)	66-2/3%	3,000,000.	33-1/3%	1,500,000.	-	4,500,000.
	37 Bus Acquisition (310)	5-18-71	MA-03-0011	(C)	66-2/3%	8,100,250.	33-1/3%	4,050,125.	-	12,150,375.
	Validation Study	8-27-70	MASS-MTD-8	(D)	87%	346,616.	13%	51,422.	-	398,038.
	Validation Stu. Amend.	5-9-71	MASS-MTD-8	(D)	83%	35,100.	17%	7,296.	-	42,396.
	Training Grants	Various	MTTR-5-9**	(M)	75%	22,738.	25%	7,579.	-	30,317.
						<u>33,961,967.</u>		<u>16,845,054.</u>		<u>50,807,021.</u>
1972	38/52 Bos. Trans. Plan. Rev.	7-9-71	MA-09-0010	(T)	66-2/3%	1,693,500.	33-1/3%	846,750.	-	2,540,250.
	41 Light Rail Veh. Spec.	12-8-71	MA-06-0015**	(D)	84%	109,084.	16%	20,841.	-	129,925.
	16 Cabot Maint. Cent. Amend.	1-12-72	MA-03-0007	(C)	66-2/3%	320,000.	33-1/3%	160,000.	-	480,000.
	54 Sta. Mod. Phase II	5-19-72	MA-03-0013	(C)	66-2/3%	9,565,086.	33-1/3%	4,782,544.	-	14,347,630.
	53 Green Line Improvements	2-25-72	MA-03-0015	(C)	66-2/3%	25,413,333.	33-1/3%	12,706,667.	-	38,120,000.
	51 Non-Revenue Equipment	1-12-72	MA-03-0021	(C)	66-2/3%	568,940.	33-1/3%	284,470.	-	853,410.
	Training Grants	Various	MA-10-0010-13**	(M)	75%	20,624.	25%	6,875.	-	27,499.
						<u>37,690,567.</u>		<u>18,808,147.</u>		<u>56,498,714.</u>
1973	41 Light Rail Veh. Spec. Amend.	8-25-72	MA-06-0015**	(D)	72%	18,327.	28%	7,126.	-	25,453.
	55 Green Line Vehicles	10-20-72	MA-03-0022	(C)	66-2/3%	32,800,000.	33-1/3%	16,400,000.	-	49,200,000.
	56 Plant Impro. Phase I	1-2-73	MA-03-0017	(C)	66-2/3%	1,573,146.	33-1/3%	786,574.	-	2,359,720.
	58 Rapid Transit Cars (80)	6-18-73	MA-03-0024	(C)	66-2/3%	18,410,600.	33-1/3%	9,205,300.	-	27,615,900.
	57 Safety Improvements	6-18-73	MA-03-0025	(C)	66-2/3%	10,601,640.	33-1/3%	5,300,820.	-	15,902,460.
	59 Plant Impro. Phase II	6-18-73	MA-03-0026	(C)	66-2/3%	7,933,092.	33-1/3%	3,966,548.	-	11,899,640.
	60 Track. Trolleys (50) Phase II	6-18-73	MA-03-0028	(C)	66-2/3%	1,781,500.	33-1/3%	890,750.	-	2,672,250.
	11/62 Haymarket North Amend.	6-27-73	MA-03-0005	(C)	66-2/3%	13,126,410.	33-1/3%	6,563,206.	-	19,689,616.
	Penn Central Acquisition	1-26-73	MA-03-9001	(L)	100%	19,500,000.	-	-	-	19,500,000.
	Training Grants	Various	MA-10-0016-20**	(M)	75%	26,494.	25%	8,832.	-	35,326.
						<u>105,771,209.</u>		<u>43,129,156.</u>		<u>148,900,365.</u>
1974	61 Rest. Orange Line Str.	10-26-73	MA-03-0029	(C)	80%	4,456,872.	20%	1,114,218.	-	5,571,090.
	63 Transit Develop. Program	8-22-73	MA-09-0016	(T)	80%	1,200,000.	20%	300,000.	-	1,500,000.
	16 Cabot Supplemental	6-10-74	MA-03-0007	(C)	80%	5,424,476.	20%	1,356,119.	-	6,780,595.
	55 Green Line Veh. Amend.	6-10-74	MA-03-0022	(C)	80%	7,628,488.	20%	1,907,122.	-	9,535,610.
	60 Track. Trolley Amend.	6-28-74	MA-03-0028	(C)	80%	1,133,360.	20%	283,340.	-	1,416,700.
	11 Haymarket North Amend.	6-27-74	MA-03-0005	(C)	80%	1,000,000.	20%	250,000.	-	1,250,000.
	65 Unified Work Program	7-11-74	MA-29-9001	(T) (IT)	80%	10,000,000.	20%	2,500,000.	-	12,500,000.
	66 Power Improvements	7-11-74	MA-03-0019	(C)	80%	2,115,836.	20%	528,959.	-	2,644,795.
	67 Purchase of 125 New Buses	7-15-74	MA-03-0018	(C)	80%	5,496,500.	20%	1,374,125.	-	6,870,625.
	Training Grants	Various	MA-10-0021-22	(M)	75%	13,006.	25%	4,349.	-	17,355.
						<u>38,468,538.</u>		<u>9,618,232.</u>		<u>48,086,770.</u>

MTA FISCAL YEAR	PROJECT DESCRIPTION	DATE APPR.	FEDERAL PROJ. #	TYPE CODE	FEDERAL	SHARE	LOCAL	SHARE	INVESTMENT INCOME	TOTAL
75	68 So. Shore R/T - Braintree	11- 1-74	MA-23-9001	(C) (IT)	80%	\$23,040,424.	20%	\$5,760,106.		\$28,800,530.
	01 Prepaid Transit Pass Program	10-25-74	MA-06-0059	(D)	100%	80,000.	-	-		80,000.
	70 Charlestown Bus Garage	2-12-75	MA-03-0016	(C)	80%	8,314,400.	20%	2,078,600.		10,393,000.
	71 Plant Impro. Phase III	2-12-75	MA-03-0031	(C)	80%	13,942,800.	20%	3,485,700.		17,428,500.
	72 Main. Productivity Study	5-22-75	MA-09-0026	(T)	80%	136,000.	20%	34,000.		170,000.
	73 Purchase & Mod. R/T Cars	7- 7-75	MA-23-9002	(C) (IT)	80%	42,688,360.	20%	10,672,090.		53,360,450.
	74 Immediate Needs Power	6-23-75	MA-03-0037	(C)	80%	10,394,400.	20%	2,598,600.		12,993,000.
	56 Plant Improv. Ph. I Amend.	7- 7-75	MA-03-0017	(C)	80%	5,723,068.	20%	1,430,767.		7,153,835.
	75 Service Bus Lines	7- 7-75	MA-03-0042	(C)	80%	204,480.	20%	51,120.		255,600.
	76 Rest. Track Support Stru.	7- 7-75	MA-03-0036	(C)	80%	2,526,256.	20%	631,564.		3,157,820.
	77 Commuter Rail Phase I	7- 7-75	MA-03-0040	(C)	80%	10,907,200.	20%	2,726,800.		13,634,000.
	78 Purchase 143 New Buses	7- 7-75	MA-03-0033	(C)	80%	7,987,396.	20%	1,996,849.		9,984,245.
	02 Validation Study Amendment	4-30-75	MA-06-0011	(D)	100%	68,000.	-	-		68,000.
	03 B & M Track Rehabilitation	7-31-75	013200117	(C)	62%	506,212.	38%	317,000.		823,212.
	79 MAPC Tech. Study	8-22-74	MA-09-0018	(T)***	-	-	100%	148,750.		148,750.
	Training Grants	Various	MA-10-0025-27	(M)	75%	18,602.	25%	6,203.		24,805.
						<u>126,537,598.</u>		<u>31,938,149.</u>		<u>158,475,747.</u>
76	Operating Asst.	11-18-75	MA-05-4003	(CA)	49%	6,241,114.	51%	6,531,258.		12,772,372.
	Training Grants	Various	MA-10-0028-32	(M)	75%	22,008.	25%	7,339.		29,347.
	53 Green Line Amend.	3-22-76	MA-03-0015	(C)	80%	9,256,368.	20%	2,314,092.		11,570,460.
	83 Midlands	4- 9-76	MA-23-9004	(C) (IT)	80%	12,800,000.	20%	3,200,000.		16,000,000.
	84 South Cove	4- 9-76	MA-23-9005	(C) (IT)	80%	26,950,400.	20%	6,737,600.		33,688,000.
	Operating Asst.	6-10-76	MA-05-4006	(CA)	9%	11,172,532.	91%	120,142,567.		131,315,099.
	86 So. Quincy R/T Sta.	7-21-76	MA-03-0049	(C)	80%	21,015,044.	20%	5,253,761.		26,268,805.
	66 Power Improvements	7-21-76	MA-03-0019	(C)	80%	12,518,560.	20%	3,129,640.		15,648,200.
	73 Purch. 190 R/T Cars	7-21-76	MA-23-9002	(C) (IT)	80%	18,418,920.	20%	4,604,730.		23,023,650.
	14 South Shore	7-21-76	MA-03-0004	(C)	80%	60,320.	20%	15,080.		75,400.
	11 Haymarket North	7-21-76	MA-03-0005	(C)	80%	2,918,244.	20%	729,561.		3,647,805.
	16 Cabot Maint. Ctr.	7-21-76	MA-03-0007	(C)	80%	551,712.	20%	137,928.		689,640.
	21 System-Wide Mod.	7-21-76	MA-03-0010-1	(C)	80%	162,204.	20%	40,551.		202,755.
	54 Sta. Mod. Phase II	7-21-76	MA-03-0013	(C)	80%	216,004.	20%	54,001.		270,005.
	53 Green Line Improvements	7-21-76	MA-03-0015-02	(C)	80%	713,744.	20%	178,436.		892,180.
	67 Purch. 125 Buses	7-21-76	MA-03-0018-01	(C)	80%	48,968.	20%	12,242.		61,210.
	66 Power Improvements	7-21-76	MA-03-0019-02	(C)	80%	42,320.	20%	10,580.		52,900.
	55 Green Line Vehicle	7-21-76	MA-03-0022-02	(C)	80%	884,740.	20%	221,185.		1,105,925.
	57 Safety Impr.	7-21-76	MA-03-0025-01	(C)	80%	220,176.	20%	55,044.		275,220.
	59 Plant Improv. Phase II	7-21-76	MA-03-0026-01	(C)	80%	370,728.	20%	92,682.		463,410.
	50 Track. Trolley 50	7-21-76	MA-03-0028-02	(C)	80%	57,908.	20%	14,477.		72,385.
	61 Rest. Orange Line	7-21-76	MA-03-0029-01	(C)	80%	204,520.	20%	51,130.		255,650.
	70 Charlestown Bus Garage	10- 6-76	MA-03-0016	(C)	80%	13,202,100.	20%	3,300,525.		16,502,625.
	65 Unified Work Program	10- 6-76	MA-29-9001-1	(T) (IT)	80%	3,000,000.	20%	750,000.		3,750,000.
	87 B & M Loan	10- 6-76	MA-23-9010	(L)	100%	24,172,750.	-	-		24,172,750.
	88 CRIP Phase II	10- 6-76	MA-23-9006	(C) (IT)	80%	46,308,960.	20%	11,577,240.		57,886,200.
	64 Mod. 88 Red Line Cars	10- 6-76	MA-23-9009	(C) (IT)	80%	14,099,368.	20%	3,524,842.		17,624,210.
						<u>225,629,712.</u>		<u>172,666,491.</u>		<u>398,316,203.</u>
77	Training Grants	Various	MA-10-0033-36	(M)	75%	33,213.	25%	11,074.		44,287.
	Operating Asst.	12- 7-76	MA-05-4014	(CA)	12%	16,868,565.	88%	127,881,575.		144,750,140.
	Operating Asst.-Rail	5- 6-77	MA-17-0001	(CA)	98%	4,838,331.	2%	339,807.		5,178,138.
	78 Purc. 100 New Buses, Amend.	5-27-77	MA-03-0033	(C)	80%	6,344,000.	20%	1,586,000.		7,930,000.
	2 Validation Study Amend. 3	6-29-77	MA-06-0011	(D)	87%	137,902.	13%	20,685.		158,587.
	65 Unified Work Program Amend.	8-30-77	MA-29-9001	(T) (IT)	80%	10,000,000.	20%	2,500,000.		12,500,000.
	4 Rehab. Comm. Rail Track & Fac.	9-30-77	01-51-20591	(C)	100%	2,500,000.	-	-		2,500,000.
	66 Power Improvements, Amend.	10- 6-77	MA-03-0019	(C)	80%	23,480,000.	20%	5,870,000.		29,350,000.
	68 So. Shore R/T-Braintree, Amend.	10- 6-77	MA-23-9001	(C) (IT)	80%	22,296,080.	20%	5,574,020.		27,870,100.
	74 Immediate Needs Power, Amend.	10- 6-77	MA-03-0037	(C)	80%	2,916,000.	20%	729,000.		3,645,000.
	89 Rehab. 50 PCC Cars	10- 6-77	MA-03-0053	(C)	80%	6,412,384.	20%	1,603,096.		8,015,480.
	92 Transit Efficiency Program	10- 6-77	MA-03-0051	(C)	80%	7,956,000.	20%	1,989,000.		9,945,000.
	93 Power Cable Program	10- 6-77	MA-03-0054	(C)	80%	6,400,000.	20%	1,600,000.		8,000,000.
	91 Red Line Northwest R/T Ext.	11-11-77	MA-23-9008	(C) (IT)	80%	42,009,180.	20%	10,502,295.		52,511,475.
						<u>152,191,655.</u>		<u>160,206,552.</u>		<u>312,398,207.</u>
78	Operating Asst.	10-14-77	MA-05-4021	(CA)	11%	16,861,566.	89%	143,613,012.		160,474,578.
	Training Grants	10-19-77	MA-10-0037	(M)	75%	12,189.	25%	4,063.		16,252.
						<u>16,873,755.</u>		<u>143,617,075.</u>		<u>160,490,830.</u>
						<u>845,689,390.</u>		<u>650,805,629.</u>	<u>\$123,116.</u>	<u>\$1,496,618,135.</u>

TYPE CODE (C) Capital (R) Relocation (D) Demonstration (T) Technical (L) Loan (IT) Interstate Transfer (M) Managerial (CA) Operating Assistance

Completed Grants *MBTA participating in MAPC Tech. Study Grant up to \$148,750.

COMMUNITY AFFAIRS AND MARKETING DEPARTMENT

The Community Affairs and Marketing Department, which is the link between MBTA services and residents of eastern Massachusetts, began a systematic review and analysis of the quality of MBTA passenger information; took steps to bring all applicant companies into the Pre-Paid Pass Program; and initiated an effort to update the Service Planning data base.

The Department consists of five sections--Consumer Relations, Community Affairs, Pass Program, Service Planning, and Advertising and Promotions. Summaries of the year's activities of these sections follow:

Consumer Relations

The Community Affairs and Marketing Department established as its top priority the development of a comprehensive traveller information system, directed by a manager of consumer relations with responsibility for customer service, senior citizen registration and special projects.

First to receive special attention was the Customer Service unit where hours of operation were expanded and new telephone equipment was installed. The new customer service telephone number is 722-3200.

During the year, 17,209 Senior Citizen half-fare and 3,844 Special Needs half-fare, off-peak passes were issued.

The Special Projects section worked on three major programs: a federally-funded electronic pass reader that will increase security and convenience in the Pre-Paid Pass Program; production and distribution of a braille map of the (T)'s rapid transit system in cooperation with the Massachusetts Commission for the Blind; and development of 10 bus route braille maps that are expected to be produced and distributed in 1978.

Community Affairs

Serving as the liaison between the technical planning and operation of service, the users of those services, and community and public officials, the Community Affairs section was able to increase the responsiveness of the (T) to the public and conversely increase the public's understanding of the (T)'s marketing, customer service and service planning activities.

Pass Program

The MBTA Pass Program experienced substantial growth from 15,210 passholders with 241 employers, at the end of 1976 to 23,531 passholders with 518 companies and agencies at the end of 1977. This is an increase of 54 percent in passholders and 114 percent in employers. These passes represent \$368,000 in monthly income or approximately 8.2 percent of total Authority revenues. Fifteen Pass Program companies subsidize the monthly pass for their employees. The subsidy--which ranges from 50 to 100%--is a new concept in employee benefits.

Two features offering greater savings and convenience to passholders were introduced. These were: (1) The Institute of Contemporary Art and the New England Aquarium both agreed to offer discounts to MBTA passholders and MBTA employees; and (2) monthly commuter railroad ticket purchasers were provided a 25¢ rapid transit pass on the back of their tickets. This program is the first real link between MBTA rapid transit and commuter rail.

The Pass Program was assigned responsibility for Spred-Sked, the MBTA's effort to persuade major downtown employers to begin flexible or staggered work hours to help ease rush hour overcrowding at six major subway stations.

Service Planning

The Service Planning section focused its efforts on identifying specific bus routes requiring improvement and on developing more comprehensive planning for the collection of passenger data on which service improvements are based.

By assisting in the capital planning processes in the Northwest Corridor, the North Shore Corridor, and the Southwest Corridor, the section was able to identify public transportation needs which may be addressed immediately, rather than in the context of long-range transit extensions. Bus route planning assistance for Boston's proposed auto-restricted zone was also provided.

The Service Planning section continued to administer three suburban para-transit experiments, begun in 1976 in Bedford, Natick, and Needham. Services in all three towns appear to be successful, indicating that a market exists for such local, intra-town service.

Advertising and Promotions

Following a study to determine the informational needs of various segments of the MBTA passenger market, new or improved informational materials were developed. These included: individual schedule cards showing maps, trip times, intermediate stops, and fare and pass information; regional brochures with a schematic route map, frequency chart, route finder and local pedestrian map; a tourist brochure in conjunction with ARTS/Boston; a rapid transit map in Chinese, the first in a series of materials for non-English-speaking passengers; and "Car-Free in Boston", a guide to public transportation in eastern Massachusetts in conjunction with the Association for Public Transportation.

Promotional campaigns, noteworthy for their public impact, included: Music Under Boston, live music at three subway stations which was a national first for Boston and since duplicated in several other cities; a cooperative program with the Massachusetts Department of Public Works, urging a switch to public transportation and carpools to ease traffic congestion expected when reconstruction begins on the Southeast Expressway; a public education campaign with the Shriners' Burns Institute, warning of the dangers of fire to children; and a promotional program, available to service organizations and clubs in the area, presenting the past, present and future of the MBTA in 35 mm. slides with a tape recorded narrative.

POLICE DEPARTMENT

Significant gains were made during 1977 in the performance of the Police Department in the areas of crime reduction, investigative effectiveness, administrative improvements, and acquisition of equipment.

After a 25 percent decrease in various crimes in 1976, there was a further 21 percent decrease in the same crimes in 1977, as shown in the following chart of comparative statistics:

<u>Crime</u>	<u>1975</u>	<u>1976</u>	<u>Net Change</u>	<u>1977</u>	<u>Net Change</u>
Assault and Battery	299	284	- 5%	255	-10%
Breaking and Entering	179	120	-33%	86	-28%
Vandalism	384	328	-14%	296	- 9%
Armed and Unarmed Robbery	319	298	- 6%	221	-25%
Larceny and Missing Property	2,453	1,372	-44%	1,106	-19%
Missiling	336	544	+62%	364	-33%
TOTALS	3,970	2,946	-25%	2,328	-21%

The reduction in crime is the result of improved deployment of manpower, based on crime trend analysis; increased use of "plainclothes" men usually working in teams, and more intensive and prompt follow-up investigations which have contributed to the arrest of offenders. All this added to the Department's efforts to change the public's perception of crime on the system and to convey the message that with approximately 500,000 people using the (T) daily an infinitesimal number is personally involved in crime.

During 1977, major arrests were made for employee theft. As a result, supervisors and department heads are more conscious of security problems and are removing or lessening the opportunity for theft by employees.

By the end of the year, (T) police had completed the first phase of a communication modernization program and the Department is now part of the Boston Area Police Emergency Radio Net, a regional system that provides two-way communication between all law enforcement agencies in the Greater Boston area.

Administrative improvements included promotion of qualified personnel to Detective rank and other ranks with command responsibility. Accountability was also improved through definition of responsibility and application of disciplinary procedures.

The addition of three new patrol vehicles not only improved department morale, but are helping in the Department's efforts to provide the best possible service to the transit riding public. Also improving morale were changes in the uniform, including a new hat style and uniform shirt.

In 1978 the Chief of Police will serve as Chairman of the Security Committee of the American Public Transit Association.

OFFICE OF SAFETY

The Office of Safety sponsored the MBTA's First Annual Bus Roadeo in the Summer at the Cabot Center Garage with 62 bus operators, whose accident and attendance records had been checked for eligibility, competing under rules of the American Public Transit Association (APTA). Twelve operators with the highest point scores after completing an obstacle course were selected as finalists to compete again to choose the champion.

The winner, Operator 'Gus' Swanson of the Cabot Garage was presented an award and sent to Atlanta, Ga., in October to represent the (T) in the National Bus Roadeo, sponsored by APTA at its annual meeting.

'Safe Driver' pins were presented to 252 Surface Lines operators who have driven a minimum of one year without being involved in an accident, and 113 operators received a U. S. Savings Bond for achieving a record of more than two years without an accident.

Nearly 800 weekly-paid employees who were not absent during 1976 were presented commendation certificates by their supervisors. Central Control and Steel Structure Maintenance areas led all others with nearly 50% of the employees receiving the awards.

Traffic accidents on surface lines (bus and streetcar) increased 10 percent over 1976 chiefly because of severe weather and poor road conditions during the first quarter of 1977. The number of passenger accidents, however, decreased 3.6 percent.

1977 was the second successive year that the number of days lost from industrial accidents has gone down. The decrease was 9.5 percent. The number of chargeable accidents--those in which an injury is so severe that an employee cannot work his/her next scheduled shift--also decreased 6.3 percent. Reported industrial accidents, however, increased by 14.3 percent. This increase is attributed to a larger number of minor first aid type injuries being reported for the first time in 1977.

PERSONNEL DIRECTORATE

The Personnel Directorate provides staff support and services to all (T) departments on matters of employee compensation, performance, recruitment and promotion, absences and affirmative action. The directorate's services include staff assistance, guidance and counseling on personnel and labor relations matters; negotiation and administration of labor contracts; screening, recruiting, examination and selection of candidates for employment, including physical examinations for present and prospective employees; design of employee training and development programs; counseling for alcoholism, drug abuse and other behavioral problems; maintenance of personnel records; and the development and implementation of an aggressive affirmative action program.

The Directorate is structured into four sections, each of which is headed by a manager who reports to the Director of Labor Relations & Personnel Administration. The four sections are: Labor Relations; Employment, Workmen's Compensation and Medical Services; Personnel; and Equal Employment Opportunity. The following is a summary of the work of the various sections during the year:

Labor Relations

The early part of 1977 was spent on settlement of the remaining labor contracts with the unions that had not come to terms based on the pattern established by the 1976 Myers Arbitration Award. By March, the pattern had been accepted by all unions except one. Arbitration on the issue followed and in March, the arbitrator issued his award, based on the already-established pattern.

Following arbitration proceedings in the Spring relative to the Pension Agreement which covers all employees, an Award was issued providing minimum benefit increases that required no additional contribution to the Fund at that time. Throughout the year, 19 grievance arbitration proceedings were held.

At year's end, time was spent gearing up for collective bargaining negotiations, because the majority of labor agreements expired December 31, 1977.

Employment, Workmen's Compensation and Medical Services

In June, a public lottery was held to establish eligibility lists from which applicants will be called for work as operator, collector, porter and other miscellaneous entry-level positions for a two-year period--June 1977 through June 1979. About 31,000 persons registered following an intensive campaign. The names of 800 women, 800 white males and 800 minority males were drawn and listed.

A major challenge was presented during the year because the budget allocation for Workmen's Compensation claims remained at the 1976 level while the weekly basic compensation rate increased by law effective January 1, 1977, and again in October of 1977. At year's end, there was every indication that costs had been controlled within the allocation despite the rise in the compensation rate.

During the year, 6,500 physical examinations were given in the medical clinic in connection with pre-employment, annual examinations required by law for operating personnel, and exams for those returning to work from sick or injured status.

Personnel

During the year, new training programs were designed and others reviewed, so as to meet the expanded goals of the Authority. A new program, Basic Orientation for Supervisors, was implemented and attended by 50 supervisors. Another program, Supervisory Indoctrination Program, was activated and attended by 49 supervisors. The Management Institute was redesigned to include presentations by department heads and key managers. Certificates were awarded to 44 persons completing this program.

The Employee Educational Assistance Plan was upgraded and 62 employees were assisted. Federal grants of \$53,199 were obtained, making it possible for 14 managers to attend transit-related programs at colleges or universities.

Added to the New Operator Training Program was a new segment emphasizing passenger relations and community awareness. A \$137,902 federal grant was awarded to complete work on a testing program for use in selecting bus operators in compliance with Equal Employment Opportunity guidelines.

The problem of absenteeism was countered in part by instruction on the effective use of progressive discipline and/or referral to the Employee Services Unit for counseling of employees with alcoholic, drug or other behavioral problems.

Assistance was provided to employees seeking to better utilize their skills and training through the Position Vacancy Notice program. More than 200 notices were distributed and, as a result, more than 1,500 applications were processed. There was also extensive participation in wage and salary surveys, either initiated by the Authority or in response to inquiries from numerous public and private sector agencies.

Affirmative Action

In addition to the job lottery program, there was continuous involvement by this section in the development of the Revised Affirmative Action Program, adopted by the Board of Directors at its meeting on December 28, 1977. Throughout the year, several discrimination claims were reviewed for validity and remedial action taken where warranted.

OFFICE OF THE TREASURER-CONTROLLER

On September 1, \$75,000,000 bonds were sold to fund the expanding capital improvement program. These bonds raised the total amount issued since 1964 to \$366,865,000, of which \$310,185,000 were outstanding as of September 1, 1977. This issue was rated A 1 by Moody's and was sold for an average interest rate of 5.93 percent.

Development of a strong system of internal controls over the expenditure of capital expansion funds was completed in 1977. This effort began in 1976 when the internal audit staff was redirected to spending all its time on auditing third party contracts. Tangible results are now being felt through the adjustments being made.

In addition, a Capital Program Control Section was established to work full time on maintaining fiscal control over the program. While responsibility for completion of capital improvements projects within budget remains with the Construction Directorate, this section provides an independent control over the projects by controlling all changes made to approved project budgets and by monitoring the project's physical and financial status to ensure problems are identified on a timely basis.

A major development effort in 1977 was a comprehensive Equal Employment Opportunity Commission Reporting System. The objective of this system is to measure the hiring and employment opportunities for minority applicants.

A pilot program employing vacuum revenue collection equipment on the Light Rail Vehicles has been a success. This system mechanically extracts coin from the farebox on the vehicles, sorts it, and deposits it directly into a high security container. These containers are delivered directly to the bank for counting a deposit. This pilot program will enable the Authority to assess the potential of this system for application to bus and trackless trolley operations.

The implementation of the requirements of Section 15 of the UMTA Act of 1964 is progressing. This requirement, known as Project FARE (Financial Accounting and Reporting Elements) is mandated by UMTA in order to maintain qualification for federal grant assistance after July 1, 1978. It consists of a uniform system of accounts and records designed to assist public transportation systems, federal, state and local governments, and the public in defining and evaluating public sector transit investment decision. Most importantly, FARE should greatly improve the Authority's ability to evaluate its own operations and their cost.

In conjunction with implementation of FARE a review is being made of the account structure of our Responsibility Accounting system and revisions to functional breakdowns of expenses are being made to make it more responsive to the needs of management.

MATERIALS DIRECTORATE

The Materials Directorate, which handled a total volume of more than \$82 million in 1977, established a new Materials Distribution Center at the Authority's Everett Complex. The Center, to which about 95 percent of the purchasing function has been relocated, resulted from the complete renovation and modernization of 70,000 square feet of existing space to provide new facilities for the Purchasing and Inventory Control Office, the automotive and cable warehouse, and the insurance stock warehouse.

Organized into five divisions, all reporting to the Director of Materials, this Directorate is responsible for purchasing, receiving, storing, and distributing materials in such quantities as are necessary for the successful support and operation of the various departments within the Authority. The following is a summary of the efforts and accomplishments of these five divisions:

Purchasing & Inventory Control

The Team Purchasing concept was adopted in 1977 with the goal of providing for a more efficient purchasing process while simultaneously introducing several job enrichment concepts. The new teams consist of buyers, inventory analysts, and administrative/clerical personnel. The teams are assigned specific tasks, and their main objectives are to purchase material at minimum cost in accordance with established Authority procurement procedures, and to review records of consumption to assure for a most economical method of inventory control.

One of the many significant purchases was the navy blue uniforms for the 3500 operating personnel. After numerous meetings to formulate specifications for the first revision in the uniform since 1963, bids were finally obtained totaling about \$640,000.

Purchasing Analysis & Specifications

This division develops procurement techniques, procedures, and specifications designed to minimize costs and maintain or improve product quality. During the year, the division:

- Established a combined purchasing section among six transit operating properties in order to issue joint bid proposals when possible.
- Published a vendor procurement policy and procedures manual.
- Developed new sources of supply for rail maintenance material realizing a savings in excess of \$60,000, with an average unit cost reduction of 50 percent.
- Conducted exhibitions and seminars in conjunction with the Office of Affirmative Action and the New England Minority Purchasing Council with the objective of promoting small and minority operated businesses within the community.

Central Stores & Inventory Coordination

This division, with storeroom facilities at Everett, Charlestown and Brookline, was involved in the Everett storerooms rehabilitation and modernization program. The new storerooms are now fully equipped with modern racks, shelving, and handling equipment allowing for a more efficient materials distribution process. To insure proper inventory volume, this division coordinates its efforts with the Purchasing Division.

Capital Procurement

This division, which purchases all capital items at minimum cost consistent with Authority standards and manages all related contractual matters, placed the following major contracts or purchase orders in 1977:

- 90 AM General buses
- 25 locomotive-hauled trailer coaches
- 5 diesel locomotives
- 50 propulsion modification kits and heating unit systems for PCC cars (streetcars)
- 100 air compressors for No. 4 rapid transit cars (Blue Line)
- 36 bullet resistant collectors' booths
- 3 steam generators and a combustion turbine generator package for the South Boston Power Station
- FM two-way radio equipment for the Commuter Railroad System, operating from North Station
- 2 switch assemblies for the Red Line Extension to Braintree

Transit Car Procurement

This division is providing, under the Authority's Capital Program, effective and economical administration for the procurement of the 70 Blue Line and 120 Orange Line vehicles. Also included is the management of all contractual, administrative, and financial matters relating to this \$104 million effort.

OFFICE OF THE GENERAL COUNSEL

The Office of the General Counsel provides legal services to other departments and to the Chairman and the Board of Directors. It handles the legal aspects of the Authority's relationships with federal, state and local governments and with private business.

The principal activity within the General Counsel's Office pertains to injury and damage suits in which the MBTA is a party. These suits result from motor vehicle accidents, accidents on the Authority's property, and similar other occurrences. Two-thirds of the General Counsel's staff works in this area in such capacities as investigators, adjusters, legal aides, trial attorneys and clerical personnel.

The year 1977 saw the reinsurance market collapse. Rates rose at an astronomical rate, and the amount of retention, or self-insurance, did likewise. The largest single finding in a tort case involving the Authority was returned against the Authority. The finding was for \$475,000, but interest and costs made the final payment over \$697,000.

Another major activity is work related to land damage suits resulting from land takings, right-of-way and eminent domain proceedings. Five persons are engaged in this function. The longest land damage trial against the Authority, almost 18 weeks before a jury, was concluded in favor of the Authority.

During the year, there was increased activity in suits being brought by many unsuccessful bidders for materials, construction, etc. One which may have the greatest impact on the Authority's future construction goals and schedules is the suit brought in the Federal Court by Perini Construction Corporation in connection with the contract award for the construction of the South Cove Tunnel.

Other functions are performed by the Railroad Labor Section, the Legislative Section, the Contract Preparation Section and the Hearing Officer Section.

1977 Legislation

The following laws affecting the Authority were enacted during the 1977 Session of the General Court:

- Chapter 207 - An Act providing for a public hearing in any significant service changes by the Massachusetts Bay Transportation Authority.
- Chapter 231 - An Act requiring notice to the Massachusetts Bay Transportation Authority relative to certain road and highway repairs.
- Chapter 356 - An Act providing for a comprehensive rail transit, accelerated highway and railroad improvement bonding authorization for the Commonwealth.

- Chapter 376 - An Act directing the Massachusetts Bay Transportation Authority to place a plaque at its Wellington Station in memory of Gerald H. Ogonosky.
- Chapter 640 - An Act relative to the relocation of utility facilities on certain Massachusetts Bay Transportation Authority construction projects.
- Chapter 726 - An Act directing the Massachusetts Bay Transportation Authority to transfer the West Fourth Street Bridge in the City of Boston to the Department of Public Works.
- Chapter 873 - An Act providing for the retention of a ticket agent at the commuter railroad station located in the Town of Sharon, operated by the Massachusetts Bay Transportation Authority.
- Chapter 877 - An Act directing the Metropolitan District Commission to convey certain parcels in the City of Revere to the Massachusetts Bay Transportation Authority and the Massachusetts Bay Transportation Authority to lease air rights over certain parcels in the City of Revere to the City of Revere.
- Chapter 970 - An Act requiring competitive bidding statutes governing construction contracts to include certain additional awarding authorities.

The following resolves which affect the Authority were passed during the 1977 Session of the General Court:

- Resolve 2 - directing the Massachusetts Bay Transportation Authority to make an investigation and study relative to police protection in the Authority's rapid transit stations.
- Resolve 9 - authorizing the continuance of the study by the Massachusetts Bay Transportation Authority relative to police protection in the Authority's rapid transit stations.

The following legislative proposals were filed for consideration by the 1978 Session of the General Court:

1. An Act relative to the financing of the Massachusetts Bay Transportation Authority.

This proposal provides 50 percent contract assistance for MBTA net cost of service and 100 percent for the Authority's net additional expense of providing commuter rail service to outside communities. This is a permanent proposal.

2. An Act relative to the reimbursement of fuel and special fuel excises to those providing mass transportation services.

Adoption of this proposal would provide 100 percent reimbursement for fuel excises not currently reimbursed.

3. An Act relative to the transfer of all vehicular bridges carrying public ways over the tracks or rights of way of railroads within the Commonwealth.

This proposal provides that the Massachusetts Department of Public Works take over certain vehicular bridges owned by the MBTA. Legislation previously enacted provided that the MDPW take over care and control of railroad bridges.

4. An Act relative to compliance with federal law, regulation and practice by the Massachusetts Bay Transportation Authority.

Section 29 of Chapter 161A directs the Authority to obtain federal funds. The third sentence of Section 29 provides, in essence, that federal law, regulations and practices governing federal assistance shall override any inconsistent provisions of Chapter 161A. This proposal would include all laws relating to the MBTA.

5. An Act authorizing and directing the Metropolitan District Commission to convey certain parcels of land in the Cities of Somerville and Medford to the Massachusetts Bay Transportation Authority and to grant permanent surface and subsurface easements for drainage purposes.

This legislation is necessary in order to comply with the agreement between the MDC and the MBTA, dated December 8, 1972.

6. An Act further regulating smoking in public conveyances.

The present statute, passed in 1968, contains language providing that one must be requested to cease smoking. This had led to many confrontations between an alleged offender and the police. This legislation deletes the language requiring the request.

7. An Act authorizing and directing the City of Cambridge to convey to the Massachusetts Bay Transportation Authority certain easement rights needed for its Red Line Northwest tunnel construction.

This proposal allows for encroachments such as temporary and permanent easements needed for construction of the Red Line through Cambridge to Alewife.

8. An Act authorizing and directing the Metropolitan District Commission to convey to the Massachusetts Bay Transportation Authority certain parcels of land in the City of Boston.

This involves two MDC park properties which will be necessary for Southwest Corridor construction.

9. An Act authorizing and directing the Metropolitan District Commission to convey certain parcels of land and easements in the Cities of Cambridge and Arlington and more specifically referred to as the Alewife Area to the Massachusetts Bay Transportation Authority.

This proposal allows for encroachments such as temporary and permanent easements needed for construction of the Red Line at Alewife.

WHERE THE RIDERS ARE

Revenue from transportation--the rider's fare--pays for approximately one-fourth of the cost of the public transportation network known as the MBTA.

The tables below show the revenue from the various types of transportation the MBTA operates on the surface and on rails. Revenue to Commuter Railroads is not included in the (T) total Transportation Revenues because this (T) service is operated by the Boston & Maine Corporation and these revenues are included as a reduction in the Commuter Railroad subsidy costs. The streetcar and bus revenue figures from each "rating station"--the garage where bus and streetcar operators pick their route on the basis of their seniority rating--gives a further breakdown of where people use public transportation.

Revenue from Transportation, 1977

Rapid Transit

Orange Line (Oak Grove-Forest Hills)	\$ 6,442,339
Blue Line (Bowdoin-Wonderland)	1,566,116
Red Line (Harvard-Ashmont)	5,674,603
Red Line (South Shore Extension in Quincy)	2,910,931
Green Line Central Subway (Kenmore-Lechmere)	6,234,900
<u>Total Rapid Transit Lines</u>	<u>\$22,828,889</u>

Surface Lines

Streetcar (Green Line: Riverside, Beacon, Arborway, Commonwealth; Mattapan-Ashmont)	\$ 5,515,980
Trackless Trolley (Cambridge, Belmont, Watertown)	1,327,790
Bus (177 Routes)	23,634,521
<u>Total Surface Lines</u>	<u>\$30,478,291</u>

Chartered Bus

	\$ 165,559
<u>TOTAL TRANSPORTATION REVENUE</u>	<u>\$53,472,739</u>

Streetcar Revenue, 1977 by Rating Stations

Reservoir (Green Line: Beacon and Commonwealth)	\$2,807,228
Riverside (Green Line)	1,694,065
Arborway (Green Line)	992,925
Mattapan-Ashmont	21,762
<u>TOTAL STREETCAR REVENUE</u>	<u>\$5,515,980</u>

Bus Revenue, 1977 by Rating Stations

Cabot-Albany, Boston	\$ 7,635,167
Arborway, Boston	3,714,798
Somerville and Arlington Heights	3,361,005
Salem Street, Medford; Charlestown; Eagle Street, East Boston	5,468,606
Lynn	1,752,090
Quincy	1,702,855
<u>TOTAL BUS REVENUE</u>	<u>\$23,634,521</u>

Revenue to Commuter Railroads

North Station	\$ 5,059,460
South Station	3,527,283
<u>Total Commuter Railroads</u>	<u>\$ 8,586,743</u>

PUBLIC TRANSPORTATION DEFICIT: A BRIEF HISTORY

For nearly 60 years—since 1918—public policy in Massachusetts has been that the transportation network in Greater Boston is a public service of such benefit to individuals, businesses and government that the public through taxation pays the difference between the income and the expenses of operating the service.

That tradition began July 1, 1918 when five public trustees began operating the Boston Elevated Railway under the lease conditions of the Public Control Act. This Act was passed May 22, 1918, six years after the Boston Elevated Railway Co. reported its first deficit of \$492,000 in 1912. In 1913, the company lost \$496,000. It made small surpluses in 1914, 1915 and 1916, but in 1917 it lost \$118,000. In the first half of 1918, when it was still under private control, losses amounted to \$572,000. But maintenance of the plant had been deferred as the company awaited public takeover. Consequently, a large public investment had to be made and the deficit for the first 12 months of public control was \$3.1 million.

In 51 of the 59 years since 1918, public transportation has incurred a deficit. The eight years of surplus were 1922, 1923, 1925, 1927, 1928, 1929, 1942 and 1943. The surplus was never more than \$1.9 million. The Metropolitan Transit Authority, which ran the system from 1948 through August 3, 1964, had deficits ranging from \$2.8 million to \$21 million.

The source of public support for public transit, however, continues to grow. The Federal Government is now providing operating assistance under the Urban Mass Transportation Assistance Act of 1974. The allocations to the MBTA are as follows: for the 1975 federal fiscal year, \$6,532,254; 1976 fiscal year, \$10,887,090; Transition Quarter, \$2,720,900; 1977 fiscal year, \$14,148,600; fiscal 1978, \$16,869,500; fiscal year 1979, \$18,502,000; and fiscal year 1980, \$16,869,500. During 1977, the Authority became eligible for an additional federal grant of \$5,338,500 to assist in the funding of operating commuter railroad service. As of December 31, 1977, the Authority had received a total of \$51,143,777. This Federal aid, combined with continuing state and local aid maintains the tradition of public support for public transportation in the Boston area. Otherwise, because total expenses are four times greater than the revenue from fareboxes, a passenger now paying 25 cents a ride would have to pay one dollar a ride. Needless to say, at one dollar a ride, ridership on the MBTA which carries about 60 percent of the rush hour commuters, would plummet with severe adverse effects on the development of Greater Boston.

MBTA ASSESSMENT PROCEDURES

A question frequently heard from our customers is "how is my town's MBTA assessment determined?" All 79 cities and towns in the MBTA district pay a share of the MBTA's yearly deficit or net cost of service. The assessment formulas for sharing the deficit were originally spelled out in state legislation passed in 1964 when the old MTA district, serving 14 cities and towns, was enlarged to the present regional transportation district and renamed the MBTA. The formulas have been amended by the legislature from time to time in an effort to make the assessment more fair and equitable.

The legislation defines two basic types of MBTA service, "express service" and "local service". Express service refers to rapid transit service on controlled rights of way, while local service refers to MBTA buses, trackless trolleys and streetcars in local streets. The net cost of providing each of these types of service is calculated separately and allocated by a different formula.

type of service	portion of deficit	who pays	basis for assessment
EXPRESS	75%	all 79 cities & towns	number of commuters
	25%	cities and towns with rapid transit & R.R.	boarding counts (except new stations)
LOCAL	50%	65 cities & towns 14 cities & towns	population (1970)
	50%	cities & towns with bus service	share of losses sustained locally

Express Service. Legislation has divided the assessment for the cost of express service into two parts, a 75% portion, and a 25% portion, each distributed in a different fashion.

The 75% portion of the net cost of express service is shared by all 79 cities and towns in the MBTA, based on the number of "commuters" living in each municipality. The number of commuters in each city and town was determined from the 1970 Federal Census data and included all people who traveled outside their town to their place of work, whether they used public transportation or not. In the case of the City of Boston, the number of commuters was established so that Boston would be responsible for not less than 30% of this 75% portion.

The remaining 25% of the net cost of express service is shared only by those cities and towns that have one or more express service stations. This part of the assessment is proportional to the number of passengers boarding the rapid transit lines at stations in each community. Each year counts are taken to determine the number of passengers boarding at each station and within each town. However, in 1973, the legislature amended the assessment procedure to exclude from the boarding

counts passengers boarding at new rapid transit stations opened after July 1973. This amendment means that a new station in a community will not result in an increase in its assessment for the 25% portion of express service costs.

Local Service. Local service refers to buses, trackless trolleys, and street-cars operating on local streets. As in express service, the formula for assigning the local service deficit is divided into two parts, in this case two equal or 50% portions. Half of the local service deficit is allocated on the basis of population, as determined by the most recent Federal Census (1970); but on the weight of 14 Cities and Towns and the 65 Cities and Towns independently. The other 50% of the deficit from local service operations is shared by those cities and towns that have such service, and is based on the proportion of losses incurred in each city or town.

To determine the operating loss incurred in each community, costs are first identified with a mode of service--bus, trackless trolley and streetcar. All direct costs are identified directly with the appropriate mode, and indirect costs are allocated to modes largely based upon the direct charges to each mode each month. Costs by mode are then allocated to specific routes by means of one of six bases depending upon the type of expense involved. Direct costs of operation and maintenance of each rating station (depot), are allocated only to routes emanating from that rating station. For example, costs of operating and maintaining routes from the Quincy Garage are allocated only to the routes in the Quincy Rating Station.

Farebox revenue is sampled on each route four times yearly, and the difference between operating cost and annual revenue determines the yearly profit or loss for each route. This profit or loss is allocated to each city or town on the route, on the basis of mileage. If a town elects to have no local service, buses then make no stops in that town, and the profit or loss from routes passing through that town is distributed among the other towns on the route. For all cities and towns with local MBTA service, the losses and profits from the routes in the community are totaled. Half of the MBTA's local service assessment is then based on the percentage of local service operating losses incurred in each municipality.

As an example of local service assessment, consider a six-mile long bus route, with four miles in Town A and two miles in Town B. Assume that the operating cost for the route was \$100,000 a year. Assume also that farebox revenue on the route was \$40,000 a year. The operating deficit would be \$60,000 a year, the difference between operating cost and revenue. Half of this \$60,000 deficit (\$30,000) would be allocated among the 14 Cities and Towns and the 65 Cities and Towns on the basis of population, and half would be allocated to Towns A and B. Town A would have to pay \$20,000 and Town B would be assessed \$10,000 because the bus route operated twice as many miles in Town A as in Town B.

The MBTA assessment procedures can be summed up by pointing out two objectives in the formulas. The first objective is to recognize that the 79 cities and towns in the MBTA district comprise one regional transportation district, that all municipalities benefit by the system, and therefore all must share some of the deficit. The second objective is to assess a greater portion of the cost of operating the MBTA on those cities and towns that get a greater degree of service. To relieve the burden on local governments, in recent years the state has begun to pay for part of the MBTA deficit. The Federal government is also providing operating subsidies for mass transit under legislation enacted in 1974.

COMPREHENSIVE PROGRAM FOR MASS TRANSPORTATION

The Executive Office of Transportation and Construction has been responsible for the Comprehensive Program for Mass Transportation since January 1, 1975, in accordance with Chapter 161A, Section 5(g) and (h), of the General Laws of the Commonwealth as amended by Section 7 of Chapter 1140, Acts of 1973.

The statute states that the Authority's capital investment program and plans for mass transportation "shall be developed in consultation and cooperation with the Authority, and in consultation with the Executive Office of Communities and Development, the Metropolitan Area Planning Council, and such other agencies of the Commonwealth or of the Federal Government as may be concerned with said program and plans." The program and any revisions are subject to the approval of the Advisory Board.

The program must include a long-range plan for the construction, reconstruction, or alteration of mass transportation facilities within the Authority's district; a schedule for the implementation of the program, and comprehensive financial estimates of cost and revenues.

The Executive Office of Transportation and Construction has prepared a draft Ten-Year Program for Mass Transportation complete with technical supplement. During the year, 10 public workshops on the draft program were held. The program served two purposes: (1) Several meetings were held with the Advisory Board's Transit Development Committee in preparation for submitting the program to the full membership of the Advisory Board for approval. (2) The draft served as the basis for the preparation of the transit portion of the 1977 annual revision of the Transportation Improvement Program, a related document whose annual updating is required by Federal financial assistance for transit projects.

The Joint Regional Transportation Committee, the transportation advisory group to the Metropolitan Planning Organization, also participated in the review of the Program for Mass Transportation and in the formulation of the 1977 revision of the multi-modal Transportation Improvement Program.

PART II

FINANCIAL STATEMENTS

DECEMBER 31, 1977 AND 1976

The Authority's financial statements were audited by Arthur Andersen & Co., independent public accountants, and their report is included with the following financial statements:

- Balance Sheet - December 31, 1977 and 1976
- Statement of Revenue and Cost of Service for the Years Ended December 31, 1977 and 1976
- Statement of Unreimbursed Cost of Service for the Years Ended December 31, 1977 and 1976
- Statement of Changes in Financial Position for the Years Ended December 31, 1977 and 1976
- Statement of Bonds Payable - December 31, 1977 and 1976
- Notes to Financial Statements - December 31, 1977 and 1976

Difference in Financial Presentation

The audited financial statements historically reflect a different amount for "Cost of Service in Excess of Revenue" than is shown on the Authority's "Statement of Net Cost of Service" due to different methods of accounting for certain costs and revenues. The audited statements include in cost of service certain non-cash expenditures such as depreciation (computed based on the useful lives of the assets) and interest accrued on Federal loans, and exclude from operating revenue reimbursements from the state and communities outside the MBTA District, whereas the Authority includes principal payments on debt as an expense in lieu of depreciation, and certain reimbursements in income.

The two amounts are reconciled as follows:

"Cost of Service in Excess of Revenue" per Authority's "Statement of Net Cost of Service"	(\$185,940,652)
ADD: Interest on the Federal Loans not currently assessable, net of property management income and expenses (See Note 11).	(3,257,329)
ADD: Reimbursement for contracted passenger services outside the district, carried by the MBTA as an income item to reduce the amount assessable to other cities and towns	(1,384,148)
ADD: Gasoline and fuel taxes reimbursed by the state carried by MBTA as income.	(412,469)
ADD: The amount that depreciation and amortization expense exceeded bond payments during the year (See Note 1, f paragraph 2, page xiv)	(7,667,418)
Total Cost of Service in Excess of Revenue per Audited Statement	<hr/> <u>(\$198,662,016)</u> <hr/>

ARTHUR ANDERSEN & Co.

BOSTON, MASSACHUSETTS

To the Board of Directors of

Massachusetts Bay Transportation Authority:

We have examined the balance sheet and statement of bonds payable of the MASSACHUSETTS BAY TRANSPORTATION AUTHORITY (a political subdivision of the Commonwealth of Massachusetts) as of December 31, 1977, and December 31, 1976, and the related statements of revenue and cost of service, unreimbursed cost of service, and changes in financial position for the years then ended. Our examinations were made in accordance with generally accepted auditing standards, and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

In our opinion, the accompanying financial statements present fairly the financial position of the Massachusetts Bay Transportation Authority as of December 31, 1977, and December 31, 1976, and the results of its operations and the changes in its financial position for the years then ended, in conformity with generally accepted accounting principles applied on a consistent basis.

Arthur Andersen & Co.

Boston, Massachusetts,
March 28, 1978.

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

BALANCE SHEET - DECEMBER 31, 1977 AND 1976

A S S E T S

	<u>1977</u>	<u>1976</u>
TRANSPORTATION PROPERTY, at cost (Notes 1 and 6):		
Transportation property in service	\$700,348,789	\$581,350,076
Less - Reserve for depreciation	<u>147,338,782</u>	<u>138,000,457</u>
	\$553,010,007	\$443,349,619
Construction in progress (Notes 1 and 6)	53,717,099	63,071,561
Property held for expansion (Note 11)	<u>22,454,050</u>	<u>58,987,700</u>
	<u>\$629,181,156</u>	<u>\$565,408,880</u>
 SPECIAL FUNDS, consisting of Cash and Certificates of Deposit:		
Construction funds, held by the bond fiscal agent	\$ 62,617,640	\$ 27,255,841
Funds received for relocation of facilities (Note 3)	269,762	269,762
Federal grants and other special funds (Notes 1 and 8)	<u>1,262,383</u>	<u>943,482</u>
	<u>\$ 64,149,785</u>	<u>\$ 28,469,085</u>
 CURRENT ASSETS:		
Cash	\$ 4,664,337	\$ 2,992,898
Temporary Cash Investments	56,600,876	34,271,696
Accounts receivable -		
Commonwealth of Massachusetts	27,857,485	30,042,372
Federal Department of Transportation (Note 2)	6,278,830	-
Boston Redevelopment Authority (Note 8)	514,196	597,071
Other	5,132,109	2,135,347
Materials and supplies, at average cost	8,123,910	7,570,245
Prepaid expenses	<u>841,962</u>	<u>213,614</u>
	<u>\$110,013,705</u>	<u>\$ 77,823,243</u>
 DEFERRED CHARGES (Notes 1 and 9)	\$ 13,210,301	\$ 11,711,995
	<u>\$816,554,947</u>	<u>\$683,413,203</u>

The accompanying notes are an integral part
of these financial statements.

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

BALANCE SHEET - DECEMBER 31, 1977 AND 1976

L I A B I L I T I E S

	<u>1977</u>	<u>1976</u>
LONG-TERM DEBT, exclusive of current maturities (Note 5):		
Bonds payable	\$397,198,299	\$334,532,558
Loans payable to Federal Department of Transportation, including accrued interest of \$8,612,818 in 1977 and \$5,280,801 in 1976 (Note 11)	<u>52,273,133</u>	<u>48,941,263</u>
	<u>\$449,471,432</u>	<u>\$383,473,821</u>
UNREIMBURSED COST OF SERVICE (Note 1)	\$ <u>(5,722,769)</u>	\$ <u>(3,535,379)</u>
CURRENT LIABILITIES:		
Current maturities of bonds payable (Note 5)	\$ 12,334,259	\$ 11,729,259
Notes payable (\$75,000,000 @ 4.50% due March 15, 1978 and \$50,000,000 @ 4.19% due December 30, 1977) (Note 5)	75,000,000	50,000,000
Accounts payable	17,243,469	12,486,546
Accrued liabilities -		
Payroll	1,369,906	1,907,226
Interest	8,568,109	4,806,887
Other	<u>3,711,777</u>	<u>2,105,662</u>
	<u>\$118,227,520</u>	\$ <u>83,035,580</u>
COMMITMENTS AND CONTINGENCIES (Notes 1, 4 and 6)		
DEFERRED CREDITS (Note 3)	\$ <u>6,404,228</u>	\$ <u>6,579,707</u>
GRANTS (Notes 1 and 8):		
Federal grants	\$263,115,405	\$220,230,654
Less - Amortization	<u>26,194,753</u>	<u>17,925,051</u>
	\$236,920,652	\$202,305,603
Boston Redevelopment Authority	11,999,479	11,999,479
Less - Amortization	<u>745,595</u>	<u>445,608</u>
	<u>\$248,174,536</u>	<u>\$213,859,474</u>
	<u>\$816,554,947</u>	<u>\$683,413,203</u>

The accompanying notes are an integral part of these financial statements.

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

STATEMENT OF REVENUE AND COST OF SERVICE

FOR THE YEARS ENDED DECEMBER 31, 1977 AND 1976

	<u>1977</u>	<u>1976</u>
OPERATING REVENUE; not including local and Federal assistance:		
Passenger Revenue	\$53,472,739	\$53,122,315
Other	<u>1,964,694</u>	<u>1,956,749</u>
	<u>\$55,437,433</u>	<u>\$55,079,064</u>
OPERATING EXPENSES (Note 10):		
Transportation Service	\$84,268,729	\$79,411,111
Maintenance	43,604,488	41,620,209
Electric Power	14,284,325	13,236,682
Depreciation and amortization (Notes 1 and 8)	19,071,677	15,904,069
General and administrative expenses - Salaries and wages	9,361,524	8,854,490
Employee pension and insurance benefits (Notes 1 and 4)	26,153,418	23,548,239
Injuries and damages and workmen's compensation claims (Note 1)	4,379,861	4,365,069
Other	<u>4,744,944</u>	<u>3,934,247</u>
	<u>\$205,868,966</u>	<u>\$190,874,116</u>
Operating loss	\$ (150,431,533)	\$ (135,795,052)
OTHER INCOME, including interest of \$4,454,453 in 1977 and \$3,859,605 in 1976	4,579,221	3,913,318
INTEREST EXPENSE, including \$21,331,477 on long-term debt in 1977 and \$18,442,310 in 1976	(25,792,928)	(21,145,635)
RAILROAD COMMUTER EXPENSE, net, including amortization of the original Railroad Contract Assistance Program of \$325,000 in both 1977 and 1976 (Notes 1, 2 and 9)	<u>(27,016,776)</u>	<u>(17,979,431)</u>
Cost of service in excess of revenue	<u>\$ (198,662,016)</u>	<u>\$ (171,006,800)</u>

The accompanying notes are an integral
part of these financial statements.

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

STATEMENT OF UNREIMBURSED COST OF SERVICE

FOR THE YEARS ENDED DECEMBER 31, 1977 AND 1976

	<u>1977</u>	<u>1976</u>
BALANCE AT BEGINNING OF YEAR	\$ (3,535,379)	\$ (4,485,887)
ADD - Cost of service in excess of revenue	(198,662,016)	(171,006,800)
DEDUCT:		
Cost of service reimbursed by the Commonwealth of Massachusetts to be assessed to the cities and towns constituting the Authority (Note 7)	78,974,567	68,920,494
Contract Assistance, portion of the cost of service paid by the Commonwealth of Massachusetts in accordance with a contract for financial assistance between the Authority and the Commonwealth (Note 7)		
Assistance pursuant to House Bill 1, 1978, pending, and Chapter 363A of the Acts of 1977	62,732,000	56,950,000
Assistance pursuant to Chapter 563 of the Acts of 1964 and Chapter 1140 of the Acts of 1973, as amended	21,532,455	20,468,582
Other	501,564	519,082
Federal Operating Assistance pursuant to the Urban Mass Transportation Act of 1964, as amended		
Section 5 (Note 12)	16,861,566	16,868,565
Section 17 (Note 2)	5,338,500	-
Cost of service reimbursed by the cities and towns outside the Authority's area	1,384,148	1,051,897
State diesel and gasoline fuel taxes reimbursable to the Authority in accordance with Section 2 of Chapter 563 of the Acts of 1964	412,469	405,131
Amortization of Federal grants (Notes 1 and 8)	8,269,702	6,305,902
Amortization of BRA grants (Notes 1 and 8)	299,987	299,987
Amortization of deferred credits (Note 3)	<u>167,668</u>	<u>167,668</u>
BALANCE AT END OF YEAR	\$ <u>(5,722,769)</u>	\$ <u>(3,535,379)</u>

The accompanying notes are an integral part of these financial statements

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY
STATEMENT OF CHANGES IN FINANCIAL POSITION
FOR THE YEARS ENDED DECEMBER 31, 1977 AND 1976

	<u>1977</u>	<u>1976</u>
FUNDS WERE USED FOR:		
Cost of service in excess of revenue	\$198,662,016	\$171,006,800
Less - Charge to cost of service in excess of revenue which did not require funds -		
Depreciation of transportation property	(18,458,197)	(15,454,906)
Amortization of deferred charges	(938,480)	(774,164)
Interest accrued on loan from Federal Department of Transportation	<u>(3,331,870)</u>	<u>(1,337,128)</u>
	\$175,933,469	\$153,440,602
Additions to transportation property, net	\$ 82,230,473	\$106,738,555
Increase in special funds	35,680,700	-
Increase in deferred charges	2,436,786	1,573,775
Decrease in bonds payable	12,334,259	11,729,259
Other	<u>19,207</u>	<u>60,088</u>
Total funds used	<u>\$308,634,894</u>	<u>\$273,542,279</u>
FUNDS WERE PROVIDED BY:		
Net cost of service reimbursable by the Commonwealth of Massachusetts for the deficit to be assessed to the cities and towns constituting the Authority	\$ 78,974,567	\$ 68,920,494
Issuance of long term debt	75,000,000	-
Contract assistance received from the Commonwealth of Massachusetts	84,766,019	77,937,664
Federal Operating Assistance	22,200,066	16,868,565
Reimbursements by the Commonwealth of Massachusetts of state diesel and gasoline fuel taxes	412,469	405,131
Reimbursement by cities and towns outside the Authority's area for service provided	1,384,148	1,051,897
Proceeds from loan from the Federal Department of Transportation	-	24,172,750
Grants from Federal and other sources	42,896,147	55,514,811
Decrease in special funds	<u>-</u>	<u>29,153,522</u>
Total funds provided	<u>\$305,633,416</u>	<u>\$274,024,834</u>
RESULTING IN A WORKING CAPITAL INCREASE (DECREASE) OF:	\$ <u>3,001,478</u>	\$ <u>482,555</u>
CHANGES IN ELEMENTS OF WORKING CAPITAL CONSIST OF:		
Increase (decrease) in current assets -		
Cash	\$ 1,671,439	\$ 1,214,360
Temporary cash investments	22,329,180	17,214,769
Accounts receivable	7,007,830	3,110,518
Materials and supplies	553,665	616,217
Prepaid expenses	<u>628,348</u>	<u>(243,477)</u>
	\$ 32,190,462	\$ 21,912,387
Increase (decrease) in current liabilities -		
Current maturities of bonds payable	\$ 605,000	\$ (1,000)
Notes payable	25,000,000	20,000,000
Accounts payable	4,756,923	559,796
Accrued liabilities	<u>4,830,017</u>	<u>871,036</u>
	\$ 35,191,940	\$ 21,429,832
Increase (decrease) in working capital	\$ <u>3,001,478</u>	\$ <u>482,555</u>

The accompanying notes are in integral part
of these financial statements.

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

STATEMENT OF BONDS PAYABLE

DECEMBER 31, 1977 AND 1976

Massachusetts Bay Transportation Authority General Transportation System Bonds issued under General Laws, Chapter 161A, Section 23 of the Commonwealth of Massachusetts, 1967 Series A, dated March 1, 1967, 1970 Series A, dated September 1, 1970, 1972 Series A, dated September 1, 1972, 1974 Series A, dated June 1, 1974, and 1977 Series A, dated September 1, 1977 are all payable in annual installments on March 1; interest is payable semiannually on March 1 and September 1.

1967 Series A Bonds - The proceeds of the sale of the 1967 Series A Bonds were required to be used for payment of \$40,000,000 of Bond Anticipation Notes outstanding and the balance of \$70,000,000 was required to be deposited in the Bond Proceeds accounts. These bonds were issued to provide funds for the purposes outlined below. The debt outstanding at December 31, 1977 and 1976 is as follows:

<u>Purpose</u>	<u>First Principal Payment</u>	<u>Year of Maturity</u>	<u>Approximate Annual Payment</u>	<u>Average Interest Rate</u>	<u>1977</u>	<u>1976</u>
Express service transportation facilities	1969	2007	\$1,900,000	3.78%	\$57,000,000	\$58,900,000
Agreement with railroads	1968	1982	325,000	3.75	1,750,000	2,075,000
Buses and other purposes	1968	1979	325,000	3.75	650,000	975,000
Local service transportation facilities	1969	2007	50,000	3.78	1,500,000	1,550,000
Capital cost of certain transportation facilities including yards, shops and rolling stock	1969	2007	650,000	3.78	<u>19,500,000</u>	<u>20,150,000</u>
					<u>\$80,400,000</u>	<u>\$83,650,000</u>

1970 Series A Bonds - The proceeds of the sale of the 1970 Series A Bonds were required to be used for payment of \$5,365,000 of Bond Anticipation Notes outstanding and the balance of \$61,500,000 was required to be deposited in the Bond Proceeds accounts. These bonds were issued to provide funds for the purposes outlined below. The debt outstanding at December 31, 1977 and 1976 is as follows:

<u>Purpose</u>	<u>First Principal Payment</u>	<u>Year of Maturity</u>	<u>Approximate Annual Payment</u>	<u>Average Interest Rate</u>	<u>1977</u>	<u>1976</u>
Express service transportation facilities	1971	2010	\$1,540,000	6.32%	\$50,720,000	\$52,260,000
Buses and other purposes	1971	1982	295,000	6.00	1,435,000	1,730,000
Purchase and improvement of the Cambridge Subway	1971	1980	185,000	6.00	<u>555,000</u>	<u>740,000</u>
					<u>\$52,710,000</u>	<u>\$54,730,000</u>

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

STATEMENT OF BONDS PAYABLE

DECEMBER 31, 1977 AND 1976

(Continued)

1972 Series A Bonds - The proceeds of the sale of the 1972 Series A Bonds were used for payment of \$8,000,000 of Bond Anticipation Notes and the balance of \$32,000,000 was deposited in the Bond Proceeds accounts. These bonds were issued to provide funds for the purposes outlined below. The debt outstanding at December 31, 1977 and 1976 is as follows:

<u>Purpose</u>	<u>First Principal Payment</u>	<u>Year of Maturity</u>	<u>Approximate Annual Payment</u>	<u>Average Interest Rate</u>	<u>1977</u>	<u>1976</u>
Express service transportation facilities and other capital costs of the transportation system	1973	2012	\$865,000	5.25%	\$30,175,000	\$31,040,000
Bus acquisition	1973	1984	295,000	5.40	2,045,000	2,340,000
Bus garages	1973	1984	165,000	5.40	<u>1,155,000</u>	<u>1,320,000</u>
					<u>\$33,375,000</u>	<u>\$34,700,000</u>

1974 Series A Bonds - The proceeds of the sale of 1974 Series A Bonds were deposited in the Bond Proceeds accounts. These bonds were issued to provide funds for the purposes outlined below. The debt outstanding at December 31, 1977 and 1976 is as follows:

<u>Purpose</u>	<u>First Principal Payment</u>	<u>Year of Maturity</u>	<u>Approximate Annual Payment</u>	<u>Average Interest Rate</u>	<u>1977</u>	<u>1976</u>
Express service transportation facilities and other capital costs of the transportation system	1975	2014	\$1,800,000	6.34%	\$66,000,000	\$67,800,000
Bus and trackless trolley acquisition	1975	1986	300,000	7.00	<u>2,700,000</u>	<u>3,000,000</u>
					<u>\$68,700,000</u>	<u>\$70,800,000</u>

1977 Series A Bonds - The proceeds of the sale of 1977 Series A Bonds were deposited in the Bond Proceeds accounts. These bonds were issued to provide funds for the purposes outlined below. The debt outstanding at December 31, 1977 is as follows:

<u>Purpose</u>	<u>First Principal Payment</u>	<u>Year of Maturity</u>	<u>Approximate Annual Payment</u>	<u>Average Interest Rate</u>	<u>1977</u>
Express service transportation facilities and other capital costs of the transportation system	1978	2017	\$1,875,000	5.93%	\$75,000,000

STATEMENT OF BONDS PAYABLE

DECEMBER 31, 1977 AND 1976

(Continued)

	<u>1977</u>	<u>1976</u>
Metropolitan Transit Authority Bond, payable in semiannual installments of \$500,000 to December, 2020 — Interest payable is the interest payable by the Boston Metropolitan District on their contra debt and refunding issues, which for the years ended December 31, 1977 was 4.35% and for December 31, 1976 was 4.43%.	\$42,918,372	\$43,918,372

Rapid Transit Bond, payable in annual installments of \$536,259 to November, 2024 — Interest is the actual interest on the City of Boston Transit Debt and refunding issues less income collected on the City's transit debt sinking fund, which for the years ended December 31, 1977 was 4.27% and for December 31, 1976 was 4.35%.	\$25,204,186	\$25,740,445
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Equipment Serial Bonds:

Year of Maturity	Approximate Annual Payment	Interest Rate	<u>1977</u>	<u>1976</u>
1977	\$219,000	3.00%	-	\$219,000
1978	174,000	3.00	\$174,000	350,000
1981	127,000	1.50	508,000	635,000
1987	127,000	2.90	1,275,000	1,402,000
1988	131,000	2.90	1,441,000	1,572,000
1993	169,000	3.00	2,704,000	2,873,000
1993	<u>100,000</u>	3.20	<u>1,600,000</u>	<u>1,700,000</u>
	<u>\$1,047,000</u>		<u>\$7,702,000</u>	<u>\$8,751,000</u>

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

STATEMENT OF BONDS PAYABLE

DECEMBER 31, 1977 AND 1976

(Continued)

	<u>1977</u>	<u>1976</u>
Construction Bonds:		
2.00%, payable \$102,000 per annum to November 21, 1979, and \$4,590,000 on November 25, 1979	\$4,794,000	\$4,896,000
1.50%, payable \$84,333 per annum to March 1, 1981, and \$3,781,667 on March 1, 1981	4,119,000	4,203,333
2.10%, payable \$22,000 per annum to January 15, 1982, and \$990,000 on January 15, 1982	1,100,000	1,122,000
2.75%, payable \$47,000 per annum to March 1, 1983, and \$2,115,000 on March 1, 1983	2,397,000	2,444,000
2.30%, payable \$10,000 per annum to March 1, 1984, and \$450,000 on March 1, 1984	520,000	530,000
3.00%, payable \$55,000 per annum to July 1, 1988, and \$2,475,000 on July 1, 1988	3,080,000	3,135,000
3.60%, payable \$69,667 per annum to February 1, 1989, and \$3,135,000 on February 1, 1989	3,971,000	4,040,667
3.50%, payable \$19,000 per annum to September 15, 1990, and \$855,000 on September 15, 1990	1,102,000	1,121,000
3.20%, payable \$40,000 per annum to April 15, 1993, and \$1,800,000 on April 15, 1993	<u>2,440,000</u>	<u>2,480,000</u>
	<u>\$23,523,000</u>	<u>\$23,972,000</u>
	\$409,532,558	\$346,261,817
Less - Current maturities of bonds payable	<u>12,334,259</u>	<u>11,729,259</u>
Bonds payable	<u><u>\$397,198,299</u></u>	<u><u>\$334,532,558</u></u>

The accompanying notes are an integral part of these financial statements.

NOTES TO FINANCIAL STATEMENTS

DECEMBER 31, 1977 AND 1976

(1) Summary of Significant Accounting Policies

(a) Transportation Property

Transportation property is stated at historical cost. Such costs may include MBTA labor costs for employees working on capital projects plus related fringe benefits and an allocated share of general and administrative costs. The cost of funds required to finance the expansion of the transportation system is expensed currently.

(b) Depreciation

Depreciation is provided in the accounts based on the straight-line method at rates which are designed to amortize the original cost of the property over its estimated useful life. The major categories of transportation property and the depreciation rates used in 1977 are:

	Rates			Cost	
	<u>Low</u>	<u>High</u>	<u>Average</u>	<u>1977</u>	<u>1976</u>
Ways and structures	1.23%	10.00%	2.19%	\$496,612,457	\$414,689,941
Equipment	2.00%	18.00%	4.63%	164,280,602	128,075,405
Land	-	-	-	39,455,730	38,584,730
				<u>\$700,348,789</u>	<u>\$581,350,076</u>

(c) Deferred Charges

Certain costs incurred by the Authority, primarily related to the expansion and modernization of the transportation system, as further described in Note 9, have been capitalized. These costs are then amortized by charges to cost of service over the future periods in which the benefit to the Authority is estimated to be realized.

(d) Injuries and Damages

In 1975, the Authority was a self-insurer on claims for injuries and damages to the extent of \$100,000 per accident. In 1976, this self-insurance limit was increased to \$1,000,000 per accident and in 1977 it was further increased to \$2,100,000 per accident. Insurance coverage is carried on claims in excess of that amount up to a maximum limit of \$15,100,000, and in 1977 the Authority became a self-insurer for 15.3% of claims between \$2,100,000 and \$5,100,000, and 15.75% of claims between \$5,100,000 and \$15,100,000.

The Authority accounts for injuries and damages by charges to operating expenses as payments are made except for a public liability fund amounting to \$725,000 at December 31, 1977 and \$250,000 at December 31, 1976 established because of the significant increase in self-insurance limits in those years.

NOTES TO FINANCIAL STATEMENTS

DECEMBER 31, 1977 AND 1976
(Continued)

(1) Summary of Significant Accounting Policies (Continued)

(e) Workmen's Compensation Insurance

Effective May 1, 1965, the Authority became a self-insurer on workmen's compensation claims under the workmen's compensation laws of the Commonwealth of Massachusetts to the extent of \$50,000 per occurrence.

In July 1977, the Authority increased its self-insured limit to \$150,000 per occurrence, and 50% of claims between \$150,000 and \$300,000. Insurance coverage is carried on each occurrence in excess of that amount up to a maximum limit of \$4,150,000 per occurrence. The Authority accounts for these claims by charges to operating expenses as payments are made.

(f) Unreimbursed Cost of Service

The legislative act under which the Massachusetts Bay Transportation Authority was established provides, among other things, that the Commonwealth of Massachusetts shall reimburse the Authority for the "net cost of service" as defined. Certain of these amounts reimbursed are then assessed to the 79 cities and towns constituting the Authority. The "net cost of service", as defined, includes a charge equal to the payments made on long-term debt during the period, and does not include a charge for depreciation and certain amortization. For financial reporting purposes however, the Authority follows the generally accepted method of depreciating and amortizing the cost of assets over their estimated useful lives.

The cumulative excess of depreciation and amortization charges over payments made on long-term debt is charged to the unreimbursed cost of service account and is recovered in years when payments made on long-term debt exceed depreciation and amortization. During the years ended December 31, 1977 and 1976 depreciation and amortization charges exceeded payments on long-term debt by \$7,667,418 and \$4,498,811 respectively. The excess of depreciation and amortization charges over payment is due primarily to the start of depreciation charges on construction projects completed and new equipment put into service during those years.

In addition, the "net cost of service" as defined does not include charges for interest expense on the Loans Payable to the Federal Department of Transportation (\$3,257,329 in 1977 and \$1,324,238 in 1976) (Note 11). However, for financial reporting purposes, these amounts have been charged to cost of service, in accordance with generally accepted accounting principles. Interest accrued will be included in "net cost of service" assessable to the cities and towns in the year it is paid.

(g) Grants

The Authority receives capital expansion grants from certain governmental agencies (see Note 8) to be used for various purposes connected with the planning, modernization and expansion of transportation facilities. These grants are deferred

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

NOTES TO FINANCIAL STATEMENTS

DECEMBER 31, 1977 AND 1976

(Continued)

(1) Summary of Significant Accounting Policies (Continued)

(g) Grants - (Continued)

until such time as the related facilities are put into service. The credits are then amortized over the estimated useful life of the assets as a reduction of Unreimbursed Cost of Service. As of December 31, 1977, the Authority had requisitioned but not received capital grant funds totaling \$27,502,683 which will be reflected on the books when received.

(2) Railroad Commuter Subsidies

Under Chapter 161A Section 3(f) of the General Laws, the Authority may enter into agreements with private transportation companies, railroads and other concerns providing for joint or cooperative operation of any mass transportation facility and for operation and use of any mass transportation facility and equipment for the account of the Authority.

In connection with the purchase of certain assets of the Boston and Maine Corporation (B & M) (see Note 11), the Authority entered into a five-year operating agreement with the B & M to provide commuter rail service north and west of Boston ("North Service"). The Authority has agreed to pay the B & M all direct costs of operating the service, plus an equitable share of indirect costs and certain incentive payments.

Rail service was provided by ConRail south and west of Boston (South Service) through March 12, 1977, at which time the B & M was contracted to continue the service with an operating agreement that runs co-terminous with the operating agreement for North Service with similar payment terms.

Section 17 of the Urban Mass Transportation Act of 1964 as amended, authorizes the Urban Mass Transportation Administration (UMTA) to furnish emergency operating assistance for the continuation of certain passenger rail service operated by ConRail as of April 1, 1976 (South Service). The amount of Section 17 subsidy available to the Authority is a percentage of the increased costs of continuing passenger service up to a maximum determined by standards set by the Rail Services Planning Office of the Interstate Commerce Commission.

NOTES TO FINANCIAL STATEMENTS

DECEMBER 31, 1977 AND 1976

(Continued)

(2) Railroad Commuter Subsidies (Continued)

The following percentages apply during the periods indicated:

	<u>Federal Share of Additional Cost</u>
Optional Period I: Sept. 28, 1976 - March 26, 1977	100%
Optional Period II: March 27, 1977 - March 31, 1978	90%
Optional Period III: April 1, 1978 - Sept. 30, 1978	80%
Optional Period IV: Oct. 1, 1978 - Sept. 27, 1980	50%

In the event that the Advisory Board fails to approve the annual budgetary provision for any of this service, these agreements shall terminate subject to certain labor protection obligations and liquidated damages in lieu of incentive payments for passengers carried.

The operating subsidy paid or payable by the Authority for commuter rail service amounted to \$26,691,776 in 1977 and \$17,654,431 in 1976. In 1977 the Authority received \$940,330 in additional charges from ConRail for 1976 commuter rail service which are not reflected in cost of service. The resulting receivable from the Federal Department of Transportation and payable to ConRail, are reflected on the balance sheet as of December 31, 1977. The net cost of commuter rail service after recognition of Section 17 Federal Operating Assistance and reimbursements for contracted service outside the district amounted to \$20,294,128 in 1977 and \$17,349,378 in 1976.

(3) Relocation of Facilities

In April, 1967, the Authority entered into an agreement with the John Fitzgerald Kennedy Library Incorporated, whereby the Authority would relocate certain Transportation facilities in order to convey certain properties to the United States and the Library Corporation.

The Commonwealth of Massachusetts appropriated \$6,098,400 to the Authority for the part of the properties conveyed to the United States. In addition, the Authority received \$1,330,112 from the Library Corporation for the remaining part of the properties, totaling \$7,428,512.

These facilities, having a net book value of \$709,807, have been retired. The amount received in excess of net book value (\$6,718,705), less \$12,000 of expense incurred in connection with the acquisition of replacement property, is included in Deferred Credits on the balance sheet.

In 1975, the replacement facilities were completed and placed in service. Amortization of the deferred credit began in 1975 and amounted to \$167,668 in both 1977 and 1976. The deferred credit is being amortized over a 40 year period (estimated useful life of the facility) and is accounted for as a reduction of the unreimbursed cost of service.

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

NOTES TO FINANCIAL STATEMENTS

DECEMBER 31, 1977 AND 1976

(Continued)

(4) Pension

The Authority has agreed to provide retirement benefits to employees through a contributory pension plan which, as currently amended, requires the payment by the Authority of an amount equal to 11-5/8% of the total payroll of the employees who are members of the plan. The cost of the plan to the Authority for the years ended December 31, 1977 and 1976 was approximately \$14,147,504 and \$13,393,955 respectively. The cost in both years is funded currently and includes interest on unfunded prior service costs, but does not include amortization of the unfunded prior service costs. The Authority is not legally obligated, under the agreement, to fund the actuarial cost of future benefits to present and retired employees. The most recent actuarial valuation was made as of December 31, 1976, and at that time, unfunded prior service costs approximated \$129,264,403.

The actuarially computed value of vested benefits, based upon the most recent actuarial report (dated December 31, 1976) was \$216,013,888. As of December 31, 1976, the market value of the fund assets was \$157,582,121 and the computed value of vested benefits exceeded the market value of fund assets by \$58,431,767. The market value of fund assets as of December 31, 1977 was \$159,584,228.

The Authority has also entered into agreements with certain salaried employees to provide supplemental pension benefits after retirement. In order to receive the benefits, the employee must have at least ten years of service and be eligible for retirement under provisions of the contributory pension plan. The annual supplemental benefit paid is equal to 1% of the employee's average annual compensation received during the last five years of service multiplied by the number of years of service, but limited to an amount which, when added to the benefit available under the contributory pension plan, is not greater than 65% of the employee's five year average annual compensation. This 65% limit was temporarily changed to 70% for certain employees retiring between January 1, 1976 and September 1, 1977. At December 31, 1977 approximately 600 employees were either receiving supplemental benefits or will be eligible to receive them upon retirement. The cost of the supplemental pension benefits is funded currently, and includes interest on unfunded prior service costs and amortization of the unfunded prior service cost over forty years. The cost to the Authority of the supplemental pension benefits was \$796,159 in 1977 and \$541,980 in 1976.

(5) Debt Guaranty

The legislative act under which the Massachusetts Bay Transportation Authority was established provides among other things, that if at any time any principal or interest is due on any bond or note issued or assumed by the Authority and funds to pay the same are not available, the Commonwealth of Massachusetts shall thereupon pay over to the Authority the amount required to meet such obligations.

NOTES TO FINANCIAL STATEMENTS

DECEMBER 31, 1977 and 1976

(Continued)

(6) Plant and Equipment Improvement Program

The Authority's program for mass transportation within the area constituting the Authority involves future total estimated costs of \$1.7 billion. Financing requirements for the program are expected to be met through various sources, including the issuance by the Authority of long-term debt securities. The remaining financing requirements are expected to be met through Federal transit aid, Federal urban renewal funds, interstate transfer funds and relocation cost reimbursements. Currently, the Authority's authorized debt ceiling is \$509,000,000. Of this amount \$120,000,000 may only be issued once, and any bonds maturing or redeemed on or after January 1, 1983 may not be reissued thereby reducing the amount of bonds which may be outstanding at any one time.

Expenditures on the program through December 31, 1977, have been financed through the issuance of \$365,000,000 of Massachusetts Bay Transportation Authority General Transportation System Bonds, and other sources as mentioned elsewhere.

As of December 31, 1977, the Authority had outstanding commitments related to the improvement program amounting to approximately \$297,000,000.

(7) Contract Assistance

The legislative act authorizing the issuance of debt securities currently provides for participation by the Commonwealth of Massachusetts in the payment of annual debt service costs on bonds issued by the Authority as follows: on the \$175,000,000 of bonds issued prior to January 1, 1971, the debt service on \$144,800,000 is eligible for contract assistance at either 90% or 50%, as provided by contract; the annual debt service on \$190,000,000 of bonds issued after January 1, 1971, is eligible for contract assistance at 90%. However, regardless of when issued, contract assistance on debt service will not be extended to over \$377,000,000 at any one time.

In 1976, the Commonwealth enacted legislation which provided the Authority with an additional amount of contract assistance for the cost of service amounting to \$56,950,000. This additional contract assistance is not assessable to the 79 cities and towns constituting the Authority and is applied for assessment purposes as a reduction of all cost items comprising the net cost of service of the Authority. This legislation is pending for 1977 and therefore the Authority has not as yet received additional contract assistance for the cost of service in 1977. If the additional contract assistance is not received, it will increase the amount to be assessed to the 79 cities and towns by \$62,732,000.

In 1973, contract assistance of \$15,051,861 was received by the Authority for funded debt, and in addition \$4,513,946 was paid by the Commonwealth for the Authority as a railroad commuter subsidy (Note 2). These amounts, totaling \$19,565,807 under Chapter 1140 of the Acts of 1973, represent the minimum contract assistance to be paid by the Commonwealth in any subsequent

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

NOTES TO FINANCIAL STATEMENTS

DECEMBER 31, 1977 AND 1976

(Continued)

(7) Contract Assistance (Continued)

calendar year. In 1977 and 1976 the Authority became eligible for \$21,532,455 and \$20,468,582 respectively. In addition, from July 1, 1975 through June 30, 1976, the Authority received contract assistance under Chapter 859 of the Acts of 1975 amounting to 50% of the net additional cost of providing rail service to certain cities and towns outside the district. Chapter 283 of the Acts of 1976 increased this assistance to 75% of the net additional cost for the period July 1, 1976 through June 30, 1977, and Chapter 363A of the Acts of 1977 extended the 75% assistance to June 30, 1978. The assistance under these Chapters amounted to \$501,564 in 1977 and \$519,082 in 1976.

(8) Grants

Under the Urban Mass Transportation Act of 1964, the Federal Department of Transportation has approved for the Authority grants for capital expansion aggregating \$745,199,373. The Authority has received \$263,453,996 of this amount. These funds have been used by the Authority to purchase new equipment and to modernize and expand mass transportation facilities.

Federal grant amortization credited to the unreimbursed cost of service amounted to \$8,269,702 in 1977 and \$6,305,902 in 1976.

Under an agreement between the Boston Redevelopment Authority and the Massachusetts Bay Transportation Authority, the BRA has approved grants aggregating \$12,000,000 in connection with the expansion of mass transportation facilities. The Authority has incurred costs totaling \$11,999,479 related to this agreement. Of this amount the Authority has not as yet been reimbursed by the BRA for \$514,196 which is included in accounts receivable.

During 1975, those facilities for which the BRA grant has partially paid, were opened for public use and capitalized for accounting purposes. In relation to this, BRA grant amortization amounting to \$299,987 in 1977 and 1976 has been credited to the unreimbursed cost of service.

(9) Deferred Charges

Under the original Railroad Contract Assistance Program the Authority incurred costs which totaled \$5,000,000, which are being amortized to cost of service over fifteen years. The amortization amounted to \$325,000 in both 1977 and 1976, and the unamortized balance at December 31, 1977 was \$1,750,000. In addition, in connection with the Authority's acquisition of the Eastern Mass. Street Railway Company in 1968, costs of \$611,362 were not assigned to tangible assets. These costs are being amortized by charges to cost of service over forty years. Amortization in both 1977 and 1976 amounted to \$15,284 and the unamortized balance at December 31, 1977 was \$473,806.

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

NOTES TO FINANCIAL STATEMENTS

DECEMBER 31, 1977 AND 1976

(Continued)

(9) Deferred Charges (Continued)

Certain other deferred charges principally relating to the expansion and modernization of the transportation system are being amortized by charges to cost of service over twenty years. Amortization amounted to \$598,196 in 1977 and \$446,945 in 1976, and the unamortized balance at December 31, 1977 was \$10,312,615.

(10) Supplementary Operating Expense Information

Operating expenses captioned below consist of the following:

	<u>1977</u>	<u>1976</u>
Transportation services -		
Salaries and wages	\$72,443,622	\$68,608,491
Taxes, including payroll taxes	4,194,427	4,001,804
Fuel	2,813,845	2,720,305
Other	<u>4,816,835</u>	<u>4,080,511</u>
	<u>\$84,268,729</u>	<u>\$79,411,111</u>
Maintenance -		
Salaries and wages	\$31,122,109	\$29,625,916
Materials and supplies	10,684,767	10,251,571
Taxes, including payroll taxes	<u>1,797,612</u>	<u>1,742,721</u>
	<u>\$43,604,488</u>	<u>\$41,620,208</u>
Electric Power -		
Salaries and wages	\$ 3,513,426	\$ 3,718,413
Power purchased	3,121,151	2,615,777
Fuel	7,199,722	6,459,738
Taxes, including payroll taxes	201,979	193,636
Other	<u>248,047</u>	<u>249,118</u>
	<u>\$14,284,325</u>	<u>\$13,236,682</u>

(11) Property Held for Expansion

On January 26, 1973, the Authority purchased 145 miles of the Penn Central Railroad's right of way and related properties in Eastern Massachusetts. This purchase was financed with a \$19.5 million (6.875% interest rate) loan from the Federal Department of Transportation. The property acquired is pledged as security for the loan.

NOTES TO FINANCIAL STATEMENTS

DECEMBER 31, 1977 AND 1976

(Continued)

(11) Property Held for Expansion (Continued)

On December 27, 1976, the Authority purchased certain assets of the Boston and Maine Corporation (B & M), including 270 miles of right-of-way, track and related properties and 84 Budd Rail Diesel cars. The cost of \$39.5 million was financed with a \$24,172,750 (8% interest rate) loan from the Federal Department of Transportation secured by the assets purchased, a \$12,261,800 Federal Department of Transportation grant, and \$3,065,450 of local funds.

Of the property purchased, \$22,454,050 is not presently in transit use by the Authority and is being held for future expansion.

Both of the Federal Department of Transportation loan agreements provide for the Authority to repay the principal plus accrued interest at the earlier of (a) ten years from date of purchase, (b) the date a grant agreement for actual construction of mass transportation facilities is made, or (c) the date a decision is made not to use the property for mass transportation. The Penn Central agreement also provides that 75% of the principal shall only be payable out of the proceeds from sale of the property, if sold.

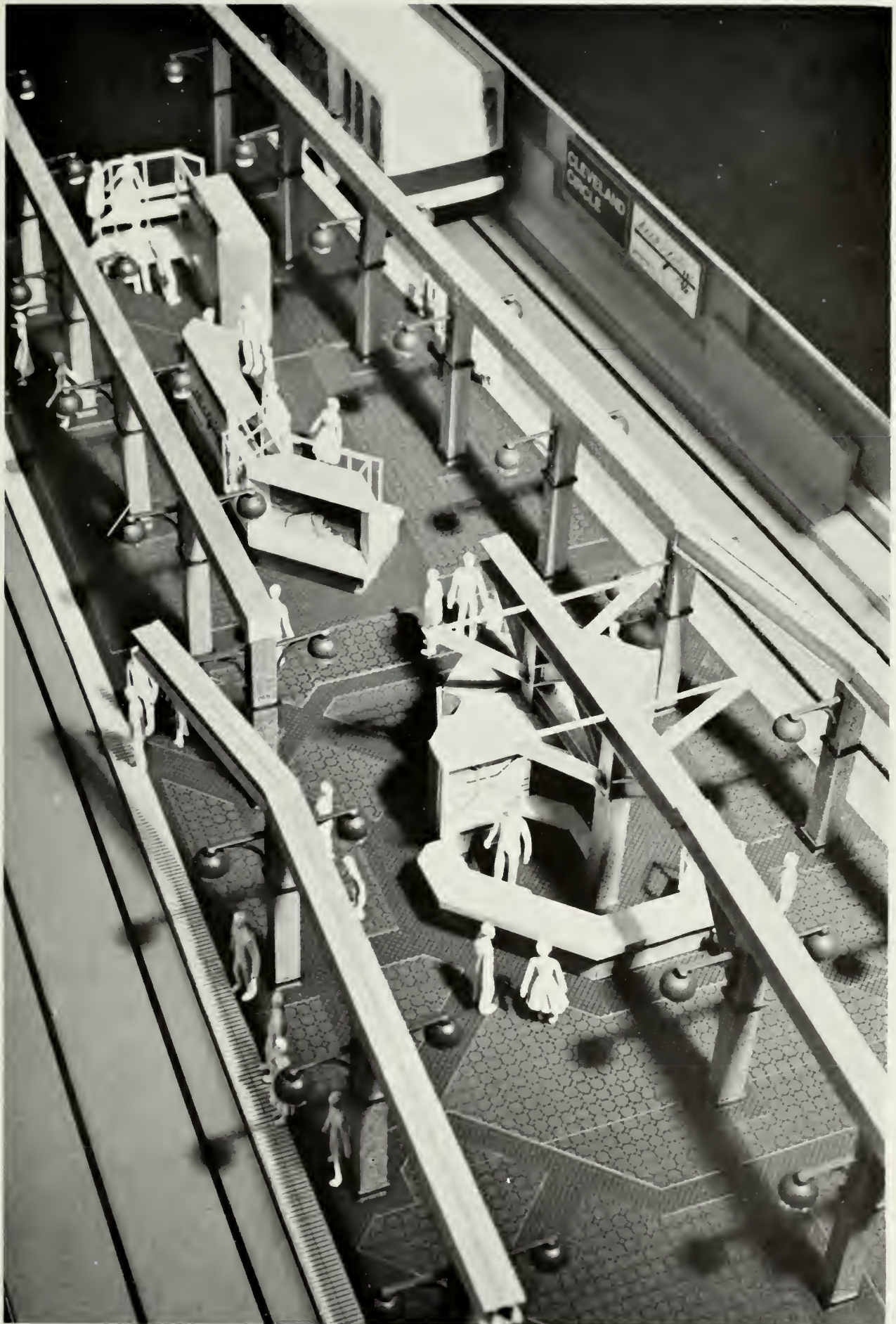
Interest totaling \$8,612,818 (\$3,331,870 in 1977 and \$1,337,128 in 1976) has been accrued in the accompanying financial statements at December 31, 1977.

(12) Federal Assistance (Department of Transportation)

Section 5 of the Urban Mass Transportation Act of 1964, as amended by the National Urban Mass Transportation Act of 1974, provides a six year mass transportation assistance program for urbanized areas apportioned on the basis of a statutory formula. Urbanized areas may use Section 5 funds by developing a specific capital assistance and/or operating assistance projects under the statutory requirements of the Act, as defined. The Authority has been designated the primary recipient for the Section 5 operating subsidy funds for the Boston Urbanized Area. The projected apportionment for the six year program for the Boston Urbanized Area, limited by the availability of these funds, is as follows:

<u>Period in Which Assistance Becomes Available</u>	<u>Projected Amount of Assistance Available</u>
Nov. 26, 1974 - June 30, 1975	\$ 6.5 Million
July 1, 1975 - June 30, 1976	10.9 "
July 1, 1976 - Sept. 30, 1977	16.9 "
Oct. 1, 1977 - Sept. 30, 1978	16.9 "
Oct. 1, 1978 - Sept. 30, 1979	18.5 "
Oct. 1, 1979 - Sept. 30, 1980	<u>16.9</u> "
Total	\$86.6 "

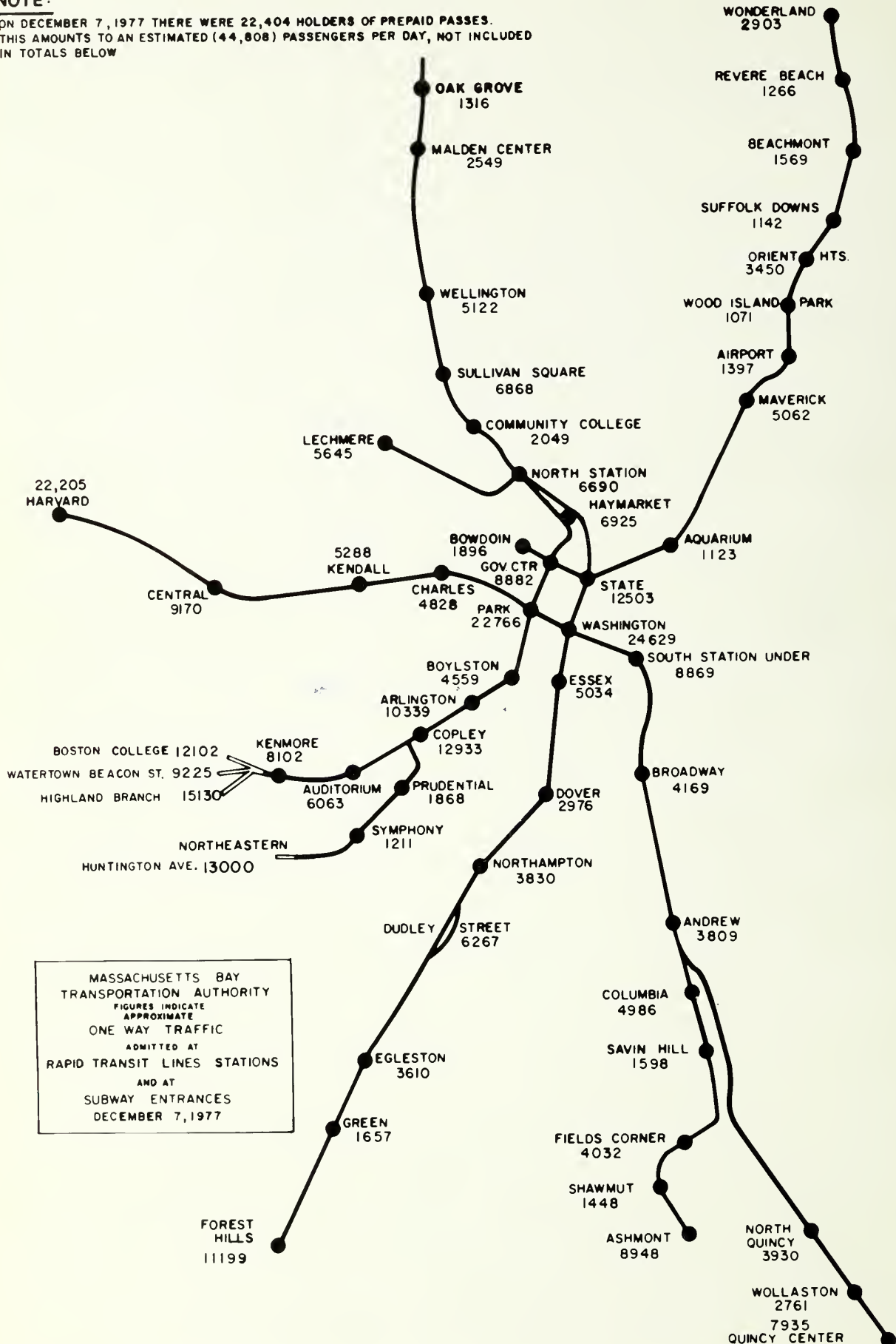
During 1977, the Authority applied for and received \$16,861,566, the entire amount of operating assistance funds available for the period beginning October 1, 1977.



MODERNIZED PARK STREET STATION on the Green Line is shown in this model. The station modernization project, about 45 percent completed at year's end, is scheduled to be finished in the Spring of 1979.

NOTE:

ON DECEMBER 7, 1977 THERE WERE 22,404 HOLDERS OF PREPAID PASSES.
THIS AMOUNTS TO AN ESTIMATED (44,808) PASSENGERS PER DAY, NOT INCLUDED
IN TOTALS BELOW



MASSACHUSETTS BAY
TRANSPORTATION AUTHORITY
FIGURES INDICATE
APPROXIMATE
ONE WAY TRAFFIC
ADMITTED AT
RAPID TRANSIT LINES STATIONS
AND AT
SUBWAY ENTRANCES
DECEMBER 7, 1977

MASS.
TC 40.1: 978

1978 ANNUAL REPORT



MASSACHUSETTS
BAY
TRANSPORTATION
AUTHORITY

BOARD OF DIRECTORS — 1978



ROBERT R. KILEY
Chairman and Chief Executive Officer



RICHARD D. BUCK



GUIDO R. PERERA, JR.

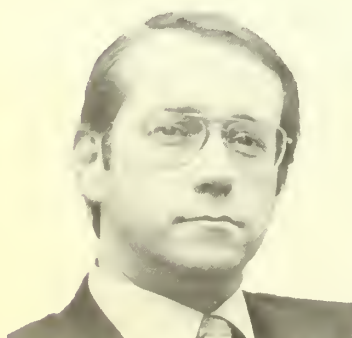


CLAIRE R. BARRETT



THEODORE C. LANDSMARK

NEW MEMBERS OF THE BOARD — 1979



ROBERT L. FOSTER
Chairman and Chief Executive Officer
January 29, 1979 -



PAUL E. MEANS
March 20, 1979 -

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THE YEAR IN PICTURES



Administrator's Award

for

Outstanding Public Service

presented to

**Massachusetts Bay
Transportation Authority**

for displaying extraordinary initiative in
advancing urban transportation
in the public interest

Richard A. Page

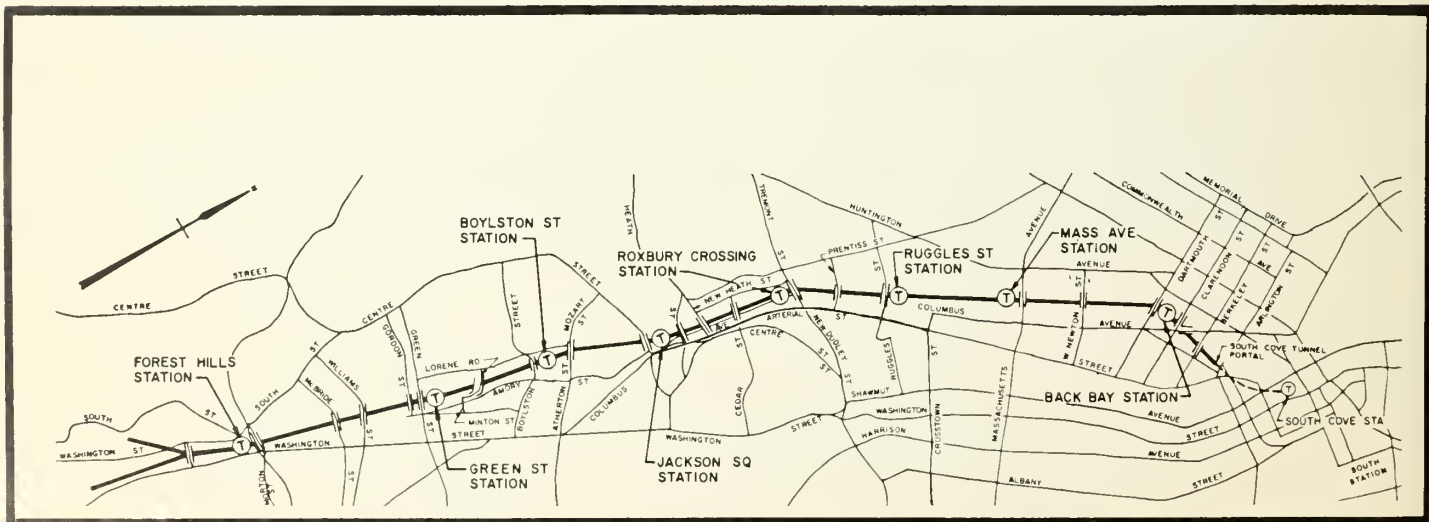
Administrator
Urban Mass Transportation
Administration

September 25, 1978

ORANGE LINE RELOCATION



U.S. SECRETARY of Transportation Brock Adams, center, in Boston on August 11, announces federal approval of a \$669 million Southwest Corridor Project consisting of relocating the MBTA's Orange Line and rebuilding Amtrak's Northeast Corridor between Forest Hills and Back Bay. The Secretary also announced a \$44,675,000 grant from the Urban Mass Transportation Administration (UMTA) to cover 80 percent of first-year construction costs. Applauding the good news, announced at a news conference held at a Roxbury site cleared in the 1960s for Interstate Route 95, are Senator Edward W. Brooke, left, and Senator Edward M. Kennedy.



MAIN SPEAKER at the January 11 ground breaking ceremony, officially marking the start of the first subway construction in the Southwest Corridor — the South Cove Tunnel — was Governor Michael S. Dukakis. Listening to his remarks are, left to right, Lieutenant Governor Thomas P. O'Neill III, and MBTA Directors Claire R. Barrett and Theodore C. Landsmark.

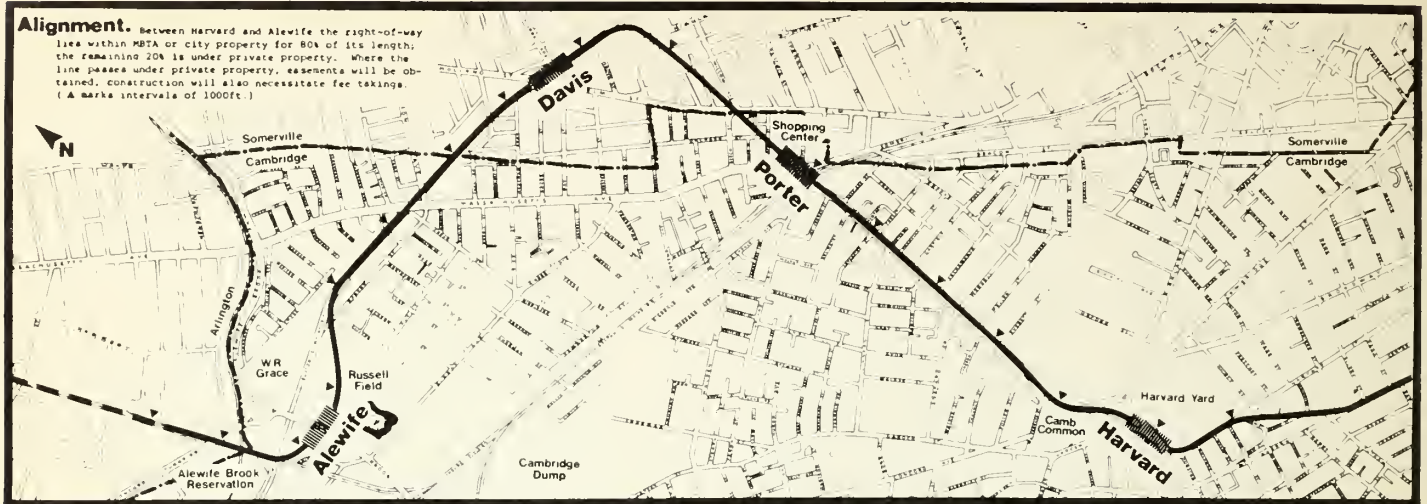


MAP SHOWS route of the Midland Branch that is being reconstructed and upgraded from a freight line to a passenger line with three new stations. Most MBTA commuter rail trains and all Amtrak trains will operate on this new route, starting in the Fall of 1979, while the Southwest Corridor Project is under construction.



STUDENT TRAINEES from the Southwest Corridor area received instruction in design, construction, transportation, and related professions under the MBTA's Educational Training Program which provided Summer jobs for some 29 high school-age Corridor residents. The program was expanded in the Fall and is continuing in 1979.

RED LINE HARVARD-ALEWIFE EXTENSION



NEW HARVARD SQUARE PLAZA with a new subway entrance and elevator entrance for the handicapped, right, and the restored historic kiosk is shown in this architect's model.



CERTIFICATE naming the Harvard Square Kiosk to the National Register of Historic Places is presented on April 20 to MBTA Chairman Robert R. Kiley, right, by Paul Guzzi, Secretary of the Commonwealth and Chairman of the Massachusetts Historical Commission which administers the National Historic Preservation Act in this state. During construction of the new Harvard Square Station, the masonry and glass kiosk with its wide overhanging copper roof framed in metal arched ribs will be dismantled and safely stored for future restoration when construction work in the area is completed.



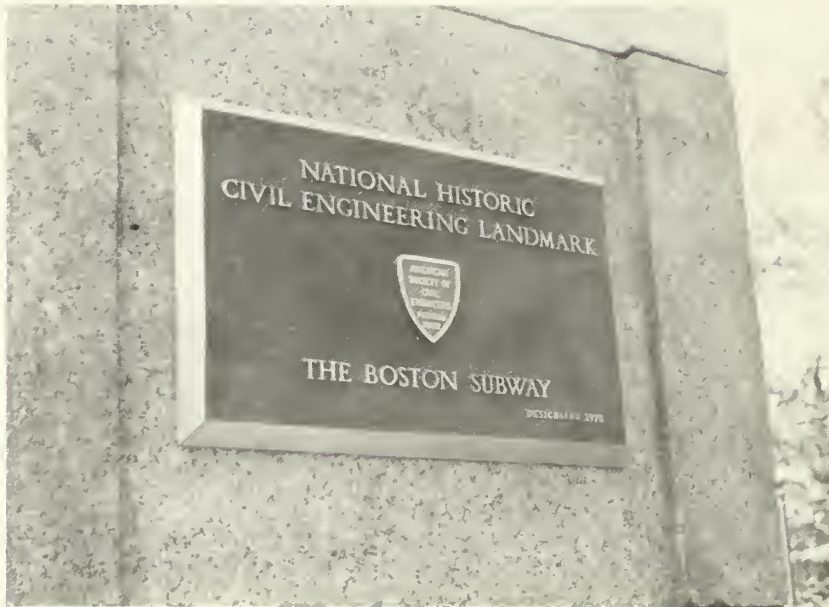
TEMPORARY STATIONS at Harvard Square for Red Line passengers and Porter Square for MBTA commuter rail passengers represent initial construction work on the \$491 million, federally-aided Red Line Extension from Harvard Square to Alewife Brook Parkway. The temporary Harvard-Brattle Station, upper left, in the Eliot Yards, and a second temporary station, Harvard-Holyoke, opposite Holyoke Center, will serve transit riders while a new Harvard Station is built. The new Cambridge Station, lower left, on the South Acton commuter rail line, is accessible from Somerville Avenue instead of Massachusetts Avenue. A new permanent station for both transit and commuter rail passengers is planned for Porter Square.

PARK STREET STATION



AN UNDERGROUND STREET, rather than an underground station, is being created by modernizing Park Street Station, the nation's oldest subway station and the MBTA's second most heavily patronized station. Completion of the federally-aided project is scheduled for early 1979.

"CELEBRATION OF THE UNDERGROUND," a mosaic mural 110 feet long hangs from the north subway wall at Park Street Station on the Green Line. Various objects, such as old trolley parts, railroad spikes, seashells, stones, pieces of slate and marble, and chips of colored and gold leaf glass imported from Italy, are imbedded in a bas relief technique of colored cast and carved cement.



ANOTHER HONOR was bestowed on the nation's first subway, built in 1897, when the American Society of Civil Engineers unveiled a bronze plaque at the Tremont Street entrance to the Park Street Station. The new plaque is similar to the one installed at the entrance in 1964, designating the subway as a Registered National Historical Landmark.

WASHINGTON STREET CONCOURSE



AN UNDERGROUND MINI-MALL, under construction, was created by the modernization of the 64-year old Washington Station Concourse connection between the Orange and Red Lines. By year's end, six of the 11 shops in the mini-mall were open for business, selling flowers, fruit, coffee, sandwiches, keys, newspapers, model trains, etc.

TRADITIONAL RIBBONS were cut by Governor Michael S. Dukakis on May 19 at the Orange Line's new fare collection area on the Washington Station Concourse. Looking on are MBTA Directors Claire R. Barrett and Theodore C. Landsmark. Other improvements included new ceramic wall tiles, new rubber flooring, new stairways and escalators, new entrances to Jordan Marsh's and Filene's basement stores, new lighting, directional signs, and steel-sheathed supporting columns.



RED LINE BRAINTREE EXTENSION



TRACKWORK PROGRESSES on the Red Line's Braintree Extension from Quincy Center Station to a new Braintree Station and 1,200-car parking garage in the vicinity of the Route 3 interchange and Union Street, South Braintree. The extension is scheduled to be opened for revenue service in late 1979. An intermediate station, named Quincy Adams, is under construction in South Quincy as are two parking garages with spaces for 2,000 cars. This complex is scheduled to be completed in 1981.

SOUTH STATION TRANSPORTATION CENTER



PLANNED INTERMODAL transportation center is shown in this cross-section of the architect's model of South Station which, at the time of its dedication on December 30, 1898, was the nation's largest railroad station. The Transportation Center will include an 11-track layout, designed for use by both Am-trak's intercity trains and the MBTA's commuter rail trains; a 500-car parking facility and intercity and commuter bus terminal, both to be built on air rights above the track and platform area; a new station concourse and lobby, and an interior passageway between the railroad station and the MBTA's Red Line South Station.

NEW BLUE LINE CAR

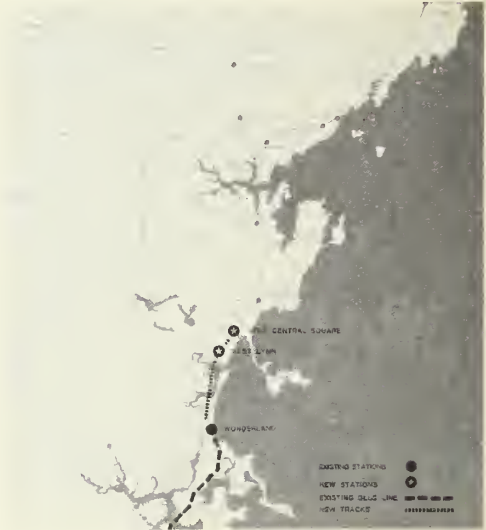


BLUE LINE RIDERS and others viewed one of the 70 new Blue Line cars at an open house held at the Orient Heights Shops on December 10. The new fleet will replace 24 cars, built in 1923 and which are the oldest transit cars operating in the United States, and 36 cars built in 1952. The new cars are 48 feet 10 inches long and weigh 30 tons. They have two four-foot wide doors on each side and can accommodate 40 seated passengers and

107 standees. They have modern safety features, two-way radio communications and public address systems; gray-tinted safety glass windows, one-quarter inch thick, rubber tile flooring, and along-the-wall bucket-type seating with an aisle wide enough for a wheelchair.



PROPOSED LYNN EXTENSION



PROPOSED EXTENSION of the Blue Line from a new Wonderland Station and 2,000-car parking garage in Revere to Lynn is shown on this map. Two stations in Lynn are proposed — one would be in West Lynn with parking for 800 cars and the other which would serve rapid transit and commuter rail passengers would be at Central Square with a 2,000-car parking garage.

GREEN LINE

NEW FACILITY for light maintenance work on streetcars and Light Rail Vehicles (LRVs) is under construction at the MBTA's 2.5-acre Lake Street Yards, Green Line terminus of the Commonwealth Avenue Line. The one-story brick and concrete building will house two inspection pits, one new and the other a rehabilitated existing pit. A smaller building for crew quarters and storage rooms is connected to the main building. Yard storage tracks will accommodate 23 LRVs.



COMMUTER RAIL IMPROVEMENTS



NEW LARGE WAITING CANOPY and platform have been built on the Boston-bound side of the tracks at Norwood Central Station where the existing station building will be renovated and new or improved parking lots built for about 200 cars. The work is part of the federally-aided Commuter Rail Improvements Project for the Franklin Branch.



SPLASH! Mrs. Henry D. Hersey of Needham breaks the traditional bottle of champagne to name Locomotive 1000 in honor of her husband at a ceremony held at South Station November 21. Watching are Mr. Hersey and Governor Michael S. Dukakis who was principal speaker. At the right, Mr. Hersey who is chairman of the 65 "outer" cities and towns on the MBTA Advisory Board and is known as "Mr. Commuter Rail" for his advocacy of preserving railroad passenger service, waves a Needham banner from the engineer's cab.

MARKETING THE



THE MBTA'S PASS PROGRAM sales office, above, was opened on the concourse at Washington Station on December 26 when passes became available to individuals who are not affiliated with companies participating in the program. At the left is the monthly pass; at the right is promotional material for passholders to travel to Downtown Crossing, and below is a car card posted in MBTA vehicles to market the Pass Program.

Rapid Transit
Streetcar
Bus & Two
Express Buses

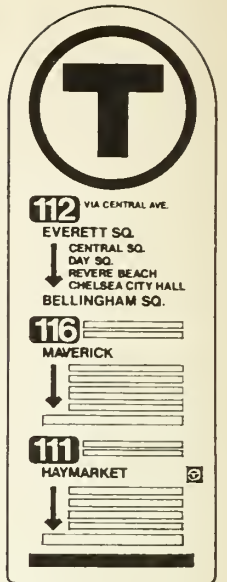


Massachusetts Bay
Transportation Authority
Monthly Transit Pass

DEC 78
50

D 717036

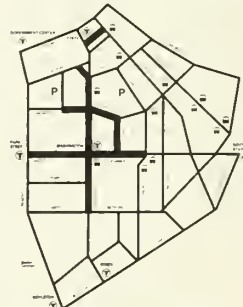
pass; at the right is promotional material for passholders to travel to Downtown Crossing, and below is a car card posted in MBTA vehicles to market the Pass Program.



NEW, DOUBLE-SIDED standard bus stop signs, above, are planned for bus and trackless trolley (trolley bus) stops.

How Do You Take Your ?

Downtown.



Car-Free Streets

Extended Bus Routes to Downtown


Express Buses to Downtown

Subway Entrances

Parking

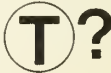
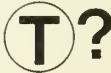
Taxis

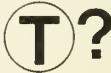
Take Your  With a Pass ... Downtown.

 Pass Program

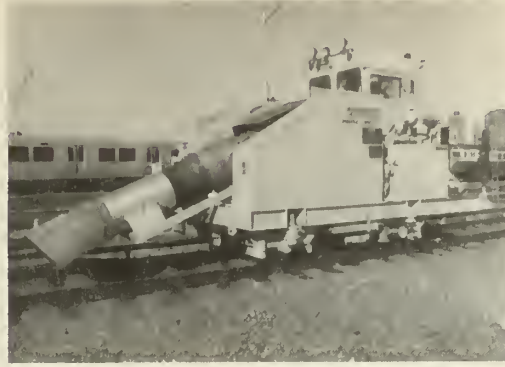


How Do You Take Your ?

More and more daily commuters (1 out of 4) are taking their  with a pass, and skipping the daily ritual of digging for exact change. There are six different pass options available, offering a month's worth of unlimited travel for the price of only 18 round trips. So the more you use the pass, the more you save. And because the pass is good every day of the week, all month long, you can take your  however you please.

Ask your employer for the brochure, which fully describes this convenient, economical way to take your , or call the Pass Program Office at 722-5218.

READY FOR WINTER



JET SNOW BLOWER is one of two the MBTA purchased in 1978. Equipped with a jet engine similar to those used in airplanes, the snow blower emits tremendous amounts of heat and air which almost immediately melts and vaporizes snow and ice on the third rail. The new equipment is used primarily in the storage yards so that the rapid trains can move in and out. It is also used to keep lines open for service.



STANDARD SNOW PLOW was modified by MBTA employees at the Orange Line's Wellington Shops by changing the angular arrangement and cutting in to the blade so that it can clear the snow from the third rail. The brush attachment behind the plow takes down the snow below the third rail.



ROTARY SNOW BLOWER, attached to a redesigned front end of a Blue Line car, is a third type of snowfighting equipment the MBTA operates to keep trains running. The snow is removed from the track-bed by an auger rotary attachment which breaks it up and feeds it into a high pressure mechanism that blows it through a tubular section away from the tracks.

MINORITY BUSINESS CONFERENCE



ABOUT 100 MINORITY architects, engineers and contractors, attending the MBTA's second annual Minority Business Enterprise (MBE) Conference on September 9, listen to remarks by Dr. James D. Corbin, MBTA Director of Equal Employment Opportunity/Affirmative Action (EEO/AA) and Chairman of the Conference. At the head table are, left to right, Alan Dobson, MBE Coordinator for the MBTA; Frederick P. Salvucci, Secretary of Transportation and Construction; Gary Gayton, special assistant to U.S. Secretary of Transportation Brock Adams; Governor Michael S. Dukakis, MBTA Chairman Robert R. Kiley, and Reginald Diamond, EEO Specialist with the Urban Mass Transportation Administration.

THE BEST



ROADEO FINALISTS who showed their skills as MBTA bus operators at the second annual competition held at the Cabot Garage, South Boston, on June 11 were, left to right, Robert Sinkler of Cabot Garage who placed third; Gus Swanson, also of Cabot who was first place winner for the second year; Ronald Colman and Robert Zagami, both of Salem Street Garage; Dennis Ingersoll and Edward Tighe, both of Lynn Garage; Robert Flynn of Bennett Street Garage; Robert Chaffee of Arborway Garage who placed second; Warren Mudge of Quincy Garage; Joseph Dooley of Bennett, Henry Jenner of Arborway, and John Luddy of Quincy.



1978 ANNUAL REPORT

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COVERS

- Front: 1907 vintage Boston Elevated Railway wooden trolley car, converted into a snow plow car more than 50 years ago, was "old reliable" clearing Green Line tracks during the "Blizzard of '78."
- Back: Concrete columns, poured up to the second level of the 1,200-car parking garage at the Red Line's Braintree Station, are covered with plastic to protect the reinforcing steel rods from rusting and staining the concrete.



MASSACHUSETTS
BAY
TRANSPORTATION
AUTHORITY

Board of Directors
50 High Street, Boston, Mass. 02110

March 21, 1979

To:

His Excellency The Governor, The General Court,
The Secretary of Transportation, and the Advisory Board
to the Massachusetts Bay Transportation Authority

The Board of Directors of the Massachusetts Bay Transportation Authority, in accordance with the requirements of Section 5(h) of Chapter 161A of the General Laws, hereby submits the Authority's Annual Report covering operations for the calendar year 1978.

The Board would like to bring to your attention that the MBTA last October received The Administrator's Award for Outstanding Public Service from Richard S. Page, Administrator of the Urban Mass Transportation Administration (UMTA), U.S. Department of Transportation. In designating the MBTA for this honor, Mr. Page said:

"Since the beginning of the UMTA program in the mid-1960's, MBTA has consistently and progressively modernized and upgraded its transportation systems, both rail and bus. No other property, for example, has undertaken as many major rail transit extensions, two of which are open, with one more opening next year.

"With UMTA assistance, MBTA has an almost totally brand new rail transit car fleet and has put into service more than 800 new buses in a 1,200-bus fleet. Boston was, of course, the first community to put into service the new Standard Light Rail Vehicles.

"It also was the first to use the Interstate transfer feature, (of the Urban Mass Transportation Act), withdrawing more than one billion dollars in Interstate segments to date in order to improve commuter and rapid rail. Boston opened an UMTA-funded Auto-Restricted Zone which has met with wide acclaim throughout the city.

"MBTA has also implemented a Pre-Paid Pass Program, has made significant efforts in labor negotiations to hold down costs, has developed innovative marketing programs; and has implemented a Transit Efficiency Program which is resulting in service that is faster and more comfortable."

SUMMARY OF THE NET COST OF SERVICE
JANUARY 1, 1978 - DECEMBER 31, 1978

The Authority's net assessable cost of service to the 79 cities and towns, which will be assessed to them in November, 1979, was \$146,289,972 as of this date. It must be noted that this amount could be reduced - to \$74,048,972 - by additional state aid of \$72,241,000 which is awaiting action (House Bill No. 1) by the General Court. Such additional state aid was received in 1973, 1974, 1975, 1976 and 1977.

Total income in 1978 amounted to \$67,670,039 and total current expenses were \$266,590,235 leaving a cost of service in excess of income of \$198,920,196.

The difference between the cost of service in excess of income and the net assessable cost of service resulted from state reimbursement of \$24,696,562 for the Authority's debt service; additional state aid of \$1,305,265 for the commuter railroad service outside the MBTA district; and Federal Operating Assistance of \$26,628,398.

In addition to the net assessable cost of service, there are two other items which must be considered by the 79 cities and towns in their settlement in November, 1979 of their 1978 accounts with the Commonwealth. These are the accounts:

	WITHOUT ADDITIONAL STATE AID	WITH ADDITIONAL STATE AID OF \$72,241,000 AS PROVIDED IN HOUSE BILL NO. 1
Net Assessable Cost of Service	\$146,289,972.	\$74,048,972.
Interest Charged by State Treasurer on Temporary Borrowings (Estimated)	\$ 6,500,000.	\$ 6,500,000.
Expenses of Boston Metro- politan District	\$ <u>16,000.</u>	\$ <u>16,000.</u>
Net Cost to Communities	\$152,805,972.	\$80,564,972.*

*House Bill No. 1, the state budget for Fiscal Year 1980 beginning July 1, 1979, provides additional contract assistance of \$72,241,000., subject to legislative approval and appropriation.

The following statement shows the Authority's net cost of service including all elements of cost for calendar year 1978.

STATEMENT OF NET COST OF SERVICE
CALENDAR YEAR JANUARY 1, 1978 TO DECEMBER 31, 1978

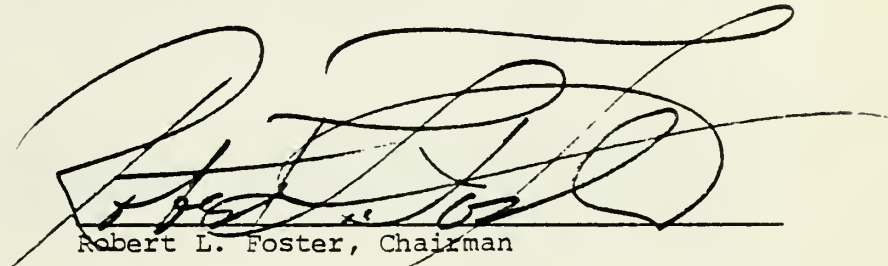
	<u>1978</u>
Income:	
Revenue from Transportation	\$55,196,145.18
Revenue from Other Rwy. Operations	2,103,421.08
Non-Operating Income	8,099,827.71
Gas & Diesel Tax Reimbursement	409,183.28
Reimbursement from Outside District	<u>1,861,462.00</u>
TOTAL INCOME	67,670,039.25
Operating Wages and Fringe Benefits:	
Wages	121,425,860.87
M.B.T.A. Pensions	16,725,658.10
Social Security Taxes	6,712,768.64
Workmen's Compensation	1,812,198.07
Accident and Sickness Insurance	407,533.05
Group Life Insurance	688,546.50
Blue Cross - Blue Shield	12,685,569.76
Unemployment Insurance	52,350.28
Uniform and Work Clothes	414,089.08
Fringe Benefit Cost Capitalized - Credit	<u>(3,408,571.39)</u>
TOTAL OPERATING WAGES AND FRINGE BENEFITS	157,516,002.96
Material and Other Items	21,622,743.03
Injuries and Damages	2,099,954.78
Interest on Unfunded Debt	7,280,540.14
Fuel	12,261,738.09
Taxes (Other than included above)	792,860.98
Railroad Commuter Subsidy	31,033,826.40
Local Service Subsidies	<u>895,317.26</u>
TOTAL OPERATING EXPENSES AND TAXES	233,502,983.64
Fixed Charges:	
Interest on Funded Debt (M.T.A.)	3,774,469.30
Interest on Funded Debt (M.B.T.A.)	16,904,783.66
Payment on Funded Debt (M.T.A.)	2,999,259.26
Payment on Funded Debt (M.B.T.A.)	9,326,748.25
Cambridge Subway Rental (M.T.A.)	5,423.36
Miscellaneous Debits (M.T.A.)	41,455.79
Bank Service Charges (M.B.T.A.)	<u>35,112.42</u>
TOTAL FIXED CHARGES	33,087,252.04
TOTAL CURRENT EXPENSES	266,590,235.68
COST OF SERVICE IN EXCESS OF INCOME	198,920,196.43
Less:	
State Fin. Contract Assistance:	
Chapter 161A of G.L. (Sec. 28)-M.T.A.	3,000,000.00
Chapter 161A of G.L. (Sec. 28)-M.B.T.A.	21,696,561.65
Chapter 283, Acts of 1976 - M.B.T.A. (RR)	-
Chapter 363A, Acts of 1977- M.B.T.A. (RR)	-
Chapter 363A, Acts of 1977- M.B.T.A. (RR)	570,289.50
Chapter 367, Acts of 1978 - M.B.T.A. (RR)	734,975.25
Chapter 367, Acts of 1978 - M.B.T.A. (RR)	-
House Bill #1 Pending Approval	72,241,000.00
Federal Operating Assistance:	
Section 5	22,487,422.00
Section 17	<u>4,140,976.00</u>
TOTAL ASSISTANCE	124,871,224.40
NET ASSESSABLE COST OF SERVICE	<u><u>574,048,972.03</u></u>

The balance sheet and statement of long-term debt of the Massachusetts Bay Transportation Authority as of December 31, 1978, and the related statements of revenue and cost of service, unreimbursed cost of service, and source of disposition of funds for the fiscal year ended December 31, 1978, together with notes relating to these financial statements, are appended to this report.

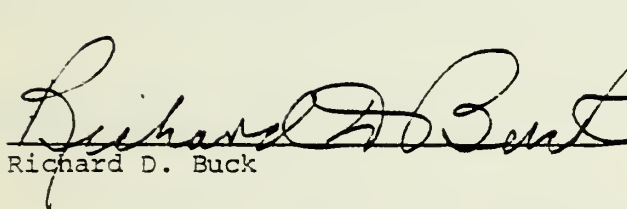
Respectfully submitted,

Board of Directors

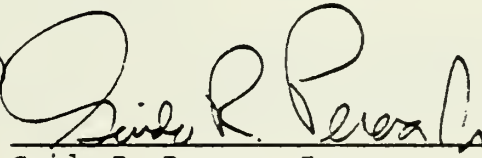
Massachusetts Bay Transportation Authority



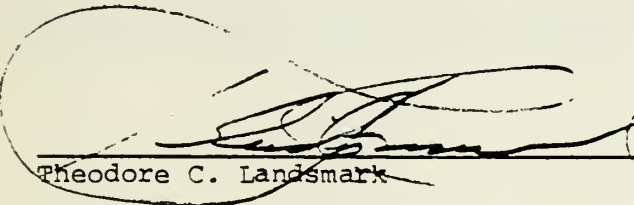
Robert L. Foster, Chairman
and
Chief Executive Officer



Richard D. Buck



Guido R. Perera, Jr.



Theodore C. Landmark



Paul E. Means

COMPREHENSIVE PROGRAM FOR MASS TRANSPORTATION

The Executive Office of Transportation and Construction (EOTC) has been responsible for the Comprehensive Program for Mass Transportation since January 1, 1975, in accordance with Chapter 161A, Section 5(g) and (h) of the General Laws of the Commonwealth, as amended by Section 7 of Chapter 1140, Acts of 1973.

The statute states that the Authority's capital investment program and plans for mass transportation "shall be developed in consultation and cooperation with the Authority, and in consultation with the Executive Office of Communities and Development, the Metropolitan Area Planning Council, and such other agencies of the Commonwealth or of the Federal Government as may be concerned with said program and plans." The program and any revisions are subject to the approval of the Advisory Board.

The program must include a long-range plan for the construction, reconstruction, or alteration of mass transportation facilities within the Authority's district; a schedule for the implementation of the program; and comprehensive financial estimates of cost and revenues.

The EOTC conducted an extensive process which has led to the development of a 1978 Revised Program for Mass Transportation. The process included 10 workshops held by the Transit Development Committee of the Advisory Board; preparation of a series of "staff reports" and a technical supplement to the Program; and a detailed review of the draft Program which involved the Advisory Board, the MBTA, and other state agencies concerned with transportation planning.

On November 27, 1978, the EOTC submitted the 1978 Revised Program for Mass Transportation to the Advisory Board for approval. The Advisory Board approved the program on December 21, 1978.

In addition to defining the MBTA's capital improvement program, as required by Massachusetts General Laws, the Program for Mass Transportation serves as the basis for the transit portions of the Transportation Plan for the Boston Region and the Transportation Improvement Program. These two documents are requirements for receiving Federal financial assistance for transit projects.

(T) STATISTICS 1978

Population of 79 Communities in (T) District (1970 U. S. Census) 2,763,410
 The (T) operates about 1,500 vehicles travelling 150,000 miles each weekday.

Number of Bus Routes	176
Number of Streetcar Routes	5
Number of Rapid Transit Routes	3
Number of Trackless Trolley Routes	4
Number of Commuter Rail Routes	10
Buses	1,081
Streetcars (218) and Light Rail Vehicles (90)	308
Rapid Transit Cars	333
Trackless Trolleys	50
Commuter Rail Vehicles: 36 Locomotives; 89 Coaches; 92 Rail Diesel Cars	217

Weekday Passengers (Estimated)	537,000
Commuter Rail - 31,000	
Basic (T) System - 506,000	
Annual Passengers (Estimated)	159,240,000
Commuter Rail - 7,840,000	
Basic (T) System - 151,400,000	

Rapid Transit Stations, Including Riverside & Mattapan Lines	72
Commuter Rail Stations	84
Miles of Track (2-way) in Subway	30
Miles of Track (2-way) on Bridges, Elevated or Surface	90
Rapid Transit Route Miles (One Way)	38.9
Red Line: Harvard-Ashmont, 9.5; Harvard-Quincy, 11.7	
Orange Line: Forest Hills-Oak Grove, 10.9	
Blue Line: Bowdoin-Wonderland, 6.8	
Rapid Transit Route Miles Under Construction (One-Way), 5.95	
Proposed Rapid Transit Route Miles (One-Way), 4.7	
Streetcar Route Miles (One-Way)	35.1
Riverside-North Station, 12.5; Arborway-Park, 5.5; Lake Street-Lechmere, via Commonwealth Ave., 8.0; Cleveland Circle-Lechmere, via Beacon Street, 6.6; Ashmont-Mattapan, 2.5	
Trackless Trolley Route Miles (One-Way)	15.75
Bus Route Miles	726
Commuter Rail Route Miles (One-Way)	259
North Station: to South Acton, 25; to Lowell, 25; to Woburn, 10; to Reading, 12; to Ipswich, 28; to Rockport, 35.	
South Station: to Framingham, 21; to Needham, 12; to Franklin, 28; to Stoughton, 19; to Providence, 44.	

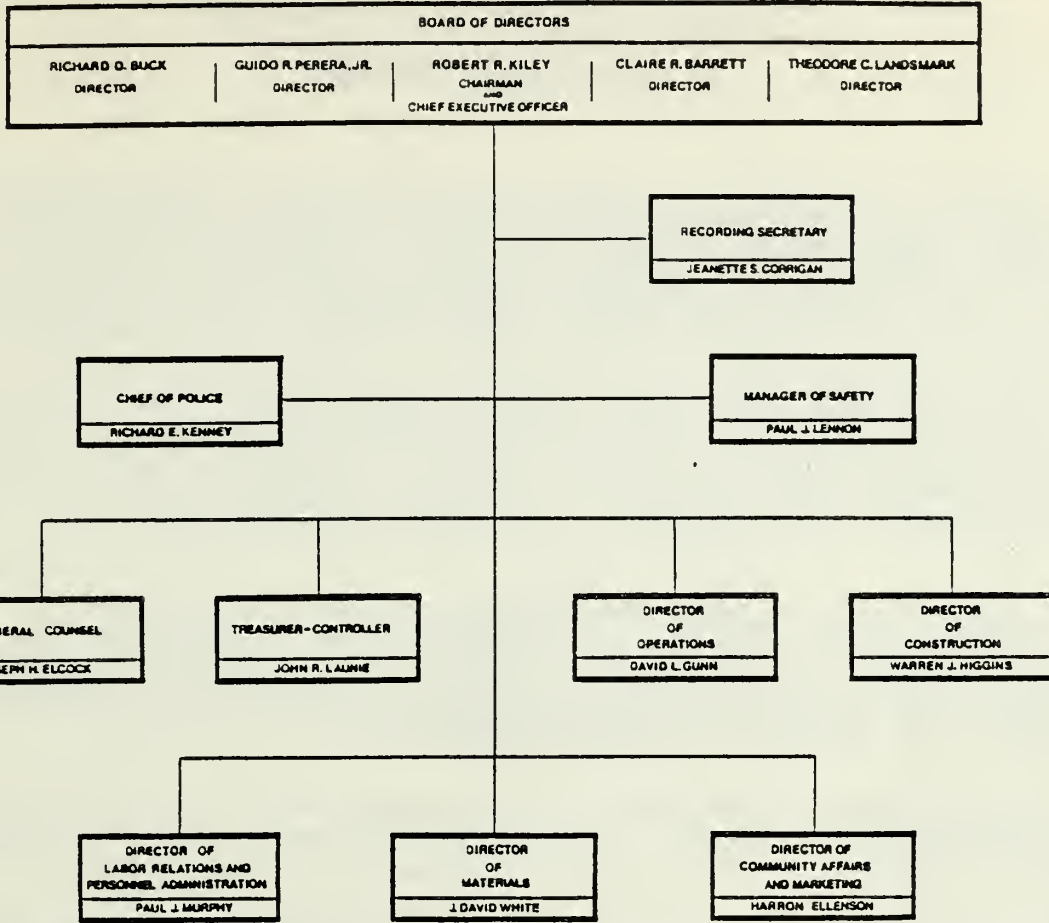
Total Route Miles Operated 1,074.75

Bus Revenue Miles	22,367,682
Rapid Transit Revenue Miles	9,669,877
Streetcar Revenue Miles	5,093,884
Trackless Trolley Revenue Miles	860,367
Total Revenue Miles Operated	<u>37,991,810</u>

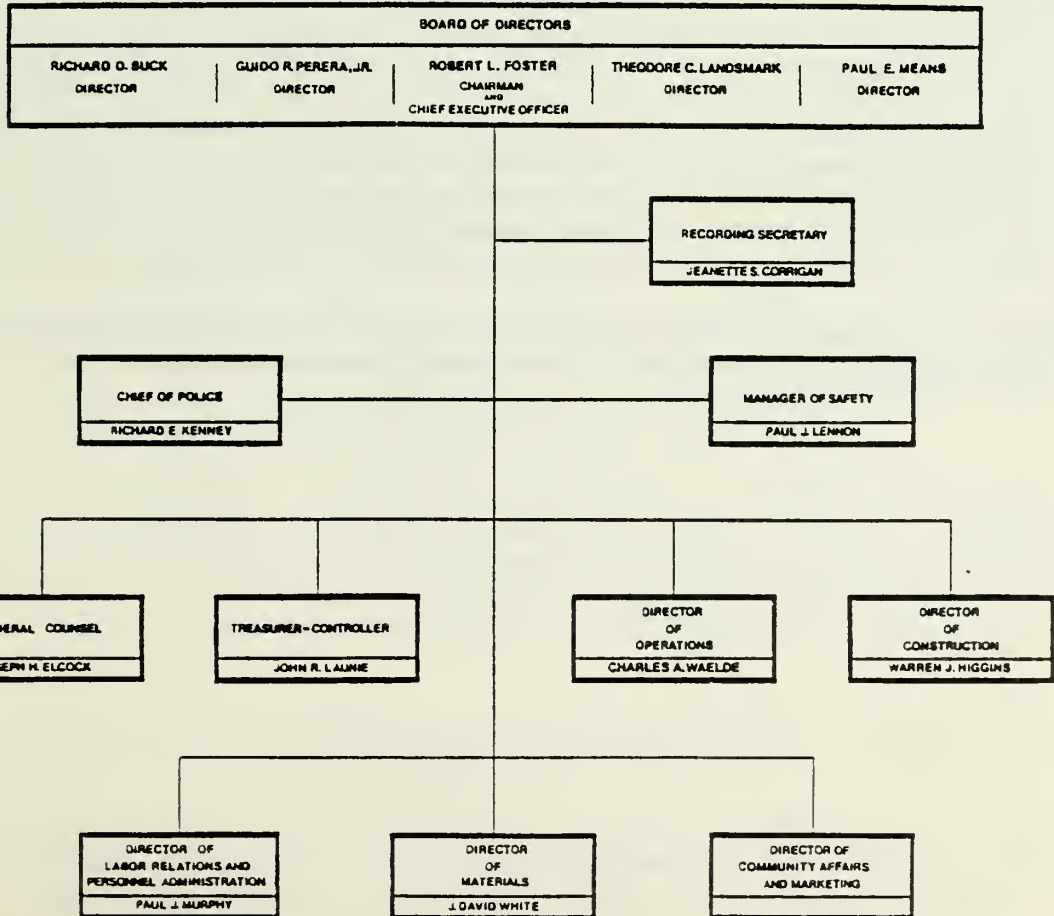
Commuter Rail Car Miles	5,231,788
Employees	6,554
(Capital Budget: 555	
Operating Budget: Permanent & Temporary - 5.999)	
Collective Bargaining Units	28

ORGANIZATION CHARTS

1978



MARCH 21, 1979



REPORTS FROM DEPARTMENTS

EXECUTIVE OFFICE

The Executive Office which consists of the Office of the Chairman and Board of Directors, the Office of Budget and Operations Analysis and the Office of Administrative Services, was expanded in 1978 by transferring the Office of Equal Employment Opportunity and Affirmative Action (EEO/AA) from the Construction Directorate. As a consequence of this move, the EEO/AA Office assumed a more visible and influential role in the Authority. Concentrating on the Authority's Affirmative Action Plan, this Office expanded recruiting activities, encouraged minority businesses to compete for MBTA contracts, helped develop and put into action the federally-aided Educational Training Program for the Southwest Corridor Development Project, and assisted all departments in complying with new EEO/AA standards.

During the year, the Executive Office initiated a comprehensive review of internal policies and procedures and developed a new manual of the same name comprising the following categories: Policy and Communications, Legislation and Legal Matters, Budget and Financial Management, Procurement of Materials and Services, and Capital Program Management.

The Asset Marketing Committee, an inter-departmental group established by the Executive Office to exploit the income producing potential of MBTA property, completed its first year of activities. Headed by the Budget Director, this Committee oversaw the leasing of parking lot concessions, 20 percent of which were won by minority businesses and the leasing of concession space along the modernized Washington Station Concourse. The Committee also undertook an analysis of concession opportunities at existing and planned stations.

An Energy Conservation Task Force, led by a member of the Executive Office and staffed by personnel from operating departments, conducted a thorough examination of energy consumption at the Authority's offices at 45 and 50 High Street and at the Cabot Maintenance Center, South Boston. As a pilot effort to determine what MBTA personnel can do to achieve energy savings, the Task Force identified several measures, some of which were implemented by year's end.

Efforts continued in 1978 to develop improved, computerized management information systems under financing by a special federal grant.

OPERATIONS DIRECTORATE

1978 began with two of the worst snow storms ever recorded in Boston's history. The MBTA was just barely recovering from the one-day, 21.4-inch storm on January 20 when the "Blizzard of '78" arrived for a three-day stay, February 6-8, bringing virtually all transportation east of Worcester to a halt for a week under emergency orders by then Governor Michael S. Dukakis.

Throughout the blizzard, the MBTA was able to maintain emergency bus service on major arteries to hospitals and assisted in the evacuation by bus of some of the hardest hit communities, such as Winthrop, Revere and Nahant. Rapid transit and bus service resumed slowly and, because of the ban on automobiles, the MBTA handled more than double the normal ridership. Commuter rail equipment was severely damaged and service had to be cut about 25 percent.

However, all departments in the Directorate - Transportation, Rail Equipment, Automotive Equipment Maintenance, Engineering and Maintenance, Commuter Rail, and Operations Planning - all pitched in to restore service and, in later months of the year, to develop plans and programs for battling snow storms in future years.

The following are reports of the year's activities of the line departments that produce MBTA service as well as the report of the Operations Planning Department.

TRANSPORTATION DEPARTMENT

The historic "Blizzard of '78" precipitated a massive effort by the Transportation Department toward updating the Authority's snow fighting equipment and procedures.

The Department was also extensively involved in the review of station design and track and storage facilities for the extensions of the Red Line northwest to Alewife Brook Parkway and south to Braintree and the Orange Line Relocation Project in the Southwest Corridor.

With the arrival of six of the 70 new Blue Line cars, instruction in the operation of the cars began as the year ended. The cars, equipped with air-cushioned ride, soundproofing, air conditioning and individual cushioned seats, are being tested and are expected to go into service in the Spring.

The Green Line, Mattapan High-Speed Trolley Line, and the three rapid transit lines operated under several difficult conditions during the year, necessitating diversions due to track repair and replacement, and the rebuilding and modernization of several stations, such as the modernization of Park and Washington Stations and construction of a new light repair facility at the Lake Street terminal on the Boston College Line.

A considerable amount of vandalism occurred throughout the system, primarily during early morning hours when the system was shutdown.

A more contemporary uniform of navy blue replaced the dull gray uniform in use since the 1960s and was issued to operating personnel, supervisory personnel and collectors. Outfitting was about 85 percent complete as the year ended.

In conjunction with the Safety Department, the second annual bus Rodeo was held at the Cabot Center in South Boston.

AUTOMOTIVE EQUIPMENT MAINTENANCE DEPARTMENT

The record breaking snow storms of January and February placed unusually hard demands on the Automotive Equipment Maintenance Department, which, in addition to meeting Winter peak schedule requirements, supported rapid transit and streetcar operations that were hampered by snow.

Except for two days when vehicles were ordered off the streets in the "Blizzard of '78", this Department maintained service providing access along major streets and to hospitals and other critical services. After the Blizzard, buses were used to replace snowbound portions of the transportation system, mostly along surface rapid transit and streetcar lines. In addition, the Department provided around-the-clock maintenance of the Authority's snow fighting equipment to assist both the MBTA and severely hurt communities in their snow removal efforts.

Almost every bus suffered damage during the two storms. The most seriously damaged had to be sent to the Everett Shops for repairs. During the year, the Everett Automotive Shop was integrated with the Automotive Department, strictly to refurbish and rebuild buses with major structural damage incurred by collision or fire.

A component exchange program was instituted at the Everett Shop where rebuilt components are stockpiled and readily available, upon request, from any other of the garages.

RAIL EQUIPMENT DEPARTMENT

Despite the severe Winter storms of January and February 1978, the Rail Equipment Department's operations were financed within the budget for the second year in a row. Equipment availability and reliability showed steady gains in spite of the disappointing performance of the new Light Rail Vehicles.

Considerable progress was made during the year on the formulation of a formal preventive maintenance system for all rail vehicles. Sixteen different maintenance procedure manuals are being developed, each containing instructions and procedures which must be followed for proper maintenance.

The disastrous Winter caused the Rail Equipment Department to completely review its snow fighting equipment capabilities. The Green Line snow plows are 1907 converted wooden passenger cars, and rapid transit snow plowing is done with vintage 1910-1920 flat cars pushed by regular passenger cars. All of the modern MBTA snow fighting equipment is truck mounted. Some of the trucks have small steel wheels which allow them to operate over tracks, but they are inefficient in heavy snow.

Late in 1977, a plan of action was adopted to rectify this situation. Two jet engine snow blowers, designed to run on rails, were procured and delivered in 1978. They will be used to clear yards and tracks after very heavy snowfalls.

An \$8 million capital grant was received in 1978 to procure 13 new snow plow locomotives, six for the Green Line and seven for rapid transit lines. These electric locomotives are in design and are expected to be delivered in 1980 or 1981. In snowy weather, they will be used to run in between regular passenger trains in order to keep lines open at all times, and in good weather, they will be used for hauling track, wire and station workcars. These old workcars, which are now propelled by regular passenger cars, will be retired and replaced with new equipment.

Some other highlights of the year follow:

Green Line (LRV): One hundred thirty-five Light Rail Vehicles had been delivered by mid-year, but due to problems with the vehicles, only about 50 cars were available for service during each peak period. Deficiencies in the vehicles required an extensive modification program which was developed and funded by Boeing but which absorbed nearly 25 percent of the Authority's maintenance work force.

As a result of these problems, Boeing was directed to ship the remaining vehicles only when they met all provisions of the specification and contract. In October, acceptance of 35 cars was rescinded because of deficiencies.

The MBTA is developing a long-range plan for improving the vehicle and expects to present this plan to UMTA in early 1979.

Green Line (PCC): Seven 25-year old PCC cars were rebuilt at Riverside Car-house and delivered for service on the Arborway Line.

Red Line (South Shore Cars): An intensive Preventive Maintenance Program was inaugurated for the South Shore Cars. All air compressors were replaced with a new more reliable model and 152 traction motors were removed and overhauled. An equal number of motors will be overhauled in 1979. Detailed plans for a more extensive system overhaul for these cars were developed in 1978 and funds to initiate extensive preventive maintenance programs are included in the 1979 operating budget. These programs will cover door circuits, couplers, brakes, trucks, propulsion system and heating, ventilation and air conditioning. Plans to overcome original design deficiencies were also formalized in 1978, and a request for \$1.5 million in capital improvement funds was submitted to UMTA.

Red Line (Cambridge-Dorchester Cars): The 88-car Cambridge-Dorchester Car Rebuild Program moved from the prototype stage into limited production during the year. Two prototype cars, painted in their new red, white and gray colors, were completed and are ready for testing. Full production of two cars per month is expected by the end of 1979.

Orange and Blue Line: The new car procurement team continued its close supervision over the Hawker-Siddeley car building process in Thunder Bay, Ontario.

By the end of the year, six new Blue Line Cars had been shipped and were undergoing acceptance testing at the MBTA. These cars are being used as production prototypes to uncover all design and manufacturing flaws before the bulk of the deliveries begin. Revenue passenger service is scheduled to begin in the Spring of 1979.

Everett Shops: Everett Shops underwent further reorganization in 1978 as automotive heavy repairs were transferred to the Automotive Equipment Department. Plans were completed for a three to four-year program to rehabilitate the entire shop complex and initial engineering funds for this work were requested from UMTA.

COMMUTER RAIL DEPARTMENT

For the Commuter Rail Department, 1978 was a year of intensive rebuilding, geared to recovering from the January 20 snowstorm that caused many problems and damaged equipment and the "Blizzard of '78" on February 6 and 7 that devastated the commuter rail fleet.

By February 16, service was being operated with only 14 locomotives, down from a normal of 20; 51 coaches, down from 79, and 32 Budd cars, down from 63. The result was service had to be reduced some 25 percent. Full normal service was restored in May.

Three federally-aided Commuter Rail Improvement Programs are substantially helping the commuter rail situation. Upgrading of the Franklin Branch roadbed and track was completed. Extensive tie renewals were made on the Gloucester Branch and the South Acton Line and five miles of continuous welded rail was installed on the South Acton Line. By year's end, construction of overnight lay-over facilities at Franklin and Rockport was well underway.

In the late Summer, the equipment picture began to brighten and is continuing.

A contract was signed, effective July 27, with the Toronto Area Transit Operating Authority (TATOA) to lease 60 relatively new but surplus commuter coaches for up to two years. The first six of these coaches arrived in the late Fall and were put into revenue service on the Framingham Line in January 1979. The use of these 60 coaches for two years gives the Authority time to convert its Budd rail diesel cars to modern push-pull coaches.

During October and November, 13 new F40-PH type locomotives were delivered by General Motors' Electro-Motive Division. Of a standard design for passenger service, they were placed in revenue service within a day or two of their arrival and are performing very well in regular service.

The first coach of 60 being built by Pullman Standard was delivered in November. This was an advance prototype car and successfully passed its roadtests. Production cars were scheduled to begin arriving in early 1979 with delivery completed before Fall.

At the end of December, the first of 17 rebuilt F-10 type locomotives was ready for delivery by Illinois Central Gulf Railroad.

ENGINEERING & MAINTENANCE DEPARTMENT

The Engineering & Maintenance Department was reorganized during 1978 to strengthen the department's managerial capability and to focus accountability at different levels so that the result would be increased productivity and improved responsiveness toward providing quality service.

During the year, this Department:

- Established a seven-day, around-the-clock Maintenance Control Center to receive and act on emergency calls, including follow-up actions.
- Implemented a systematic and comprehensive Preventive Maintenance Program for the Authority's garages, shops and carhouses and instituted a scheduled cleaning program for stations, yards, shops and all other Authority buildings. To supplement the ongoing right-of-way and property cleanup program, 30 CETA laborers were hired for six months.
- Installed, in all tunnels, a Fire Department Radio System providing instant communication between firefighters and headquarters during a tunnel fire; installed a Police Radio System integrating it with the Greater Boston Police Emergency Radio Network as a part of the Authority's Safety Program, and designed a new two-way radio system for the Handicapped Transportation Program.
- Started a \$66 million, federally-aided Track Improvement Project, surfacing 27 miles of single tracks on the Blue, Red and Orange Lines and started a design program for work train equipment to replace the existing fleet that has an average age of 55 years.
- Upgraded the electrical capacity of the Red Line's third rail by installing new 150-pound third rail on the Cambridge-Dorchester Line and upgrading track on both the Cambridge-Dorchester and South Shore Lines.
- Completed and received Department of Public Utilities certification of final modifications for in-cab signalling of the Red Line's Silverbirds and the signal system at the Cabot Yard and Tower. Also completed were the design and tests for in-cab signalling for the Red Line's Bluebirds which are being modernized to make them compatible with the Silverbirds.
- Cleared Orange and Blue Line tunnels for the operation of the new rapid transit cars for both lines.
- Completed installation of third rail heaters at the Cabot Yard and its connecting tracks with the Red Line as well as on the Orange Line from Community College to Oak Grove Stations.
- Developed a snow plan to deal effectively and efficiently with snow emergencies.
- Completed modifications to the Green Line's overhead wire system on Commonwealth and Huntington Avenue to Brigham's Circle for LRV operations; and upgraded rectifiers at Orient Heights Substation, on the Blue Line, increasing reliability 85 percent, and at Cooks Junction Substation on the Green Line, increasing reliability 60 percent, by converting to 60 Hz from 25 Hz.
- Completed design and award of over \$20 million in contracts for federally-aided rehabilitation efforts at South Boston Power Station with structural, electrical, and mechanical work substantially completed by year's end; completed rehabilitation of Boiler No. 21; installed a new turbine generator, three steam boilers and waste water treatment facilities, and completed a major overhaul of an existing steam turbine generator.
- Began a \$31 million, federally-aided Cable Replacement Program to upgrade and improve the entire AC and DC cable system by installing two miles of AC cable, and awarding contracts for the latest and most modern cable and installation equipment available.
- Made significant improvements at the Orange Line's Dudley Station by completing structural and skylight repairs, painting, improved lighting and signage.

OPERATIONS PLANNING DEPARTMENT

Only one major service improvement project, made possible by a demonstration grant from the Urban Mass Transportation Administration (UMTA) to the City of Boston, was implemented during 1978. Named "Downtown Crossing", the demonstration project went into effect with the Fall Timetable and involved the extension and re-routing of 10 bus routes into an auto-restricted area centering on the retail core of Downtown Boston. The one-year project is testing the effect of restricting automobile traffic in a downtown area on retail sales and transit ridership.

Most other service improvements were relatively minor, but LRV service was introduced on the Arborway, Beacon Street and Commonwealth Avenue Lines.

With the Summer Timetable, a new experimental fare collection procedure was implemented on the Riverside Line. Designed to speed up outbound service and make it more convenient for passengers to board and alight outbound streetcars, the experiment proved successful and the new procedure is now in the process of being extended to the Beacon Street and Commonwealth Avenue Lines.

In October, the limitation on free transfers for students between urban and suburban services was eliminated.

Two additional private carrier bus services were subsidized during the year. On January 1, Michaud Bus Lines began being subsidized in an effort to prevent discontinuation of important bus services in Salem and Peabody and, in September, Hudson Bus Lines began operation of a subsidized service in the South Weymouth area to test the market for improved transportation in accordance with a suggestion made at a community meeting in late 1977.

During 1978, THE RIDE, a specialized dial-a-ride service for the handicapped, was expanded both in geographical coverage and in hours and days of operations. Since the amount of service provided in 1978 was nearly double that provided in 1977, plans were made for a phased three-year expansion of the service, starting in 1979.

An extensive review was made of the U.S. Department of Transportation's proposed regulations for implementing Section 504 of the Rehabilitation Act of 1973, requiring the MBTA and other transit operators to undertake a major retrofit program designed to make all transit service, facilities and vehicles accessible to all handicapped persons. The Authority submitted its comments and analyses of the proposed regulations to the Department, but by year's end, no final regulations had been issued.

Throughout 1978, the Operations Planning Staff worked extensively with the MBTA Citizens Task Force of the Massachusetts Consumers Council and with various community groups, such as the Arborway Committee and the Somerville Fair Share, on transit issues and problems.

CONSTRUCTION DIRECTORATE

A record \$264,979,138 in federal aid, all but about \$12 million for capital improvements, was awarded to the MBTA during calendar 1978 by the Urban Mass Transportation Administration (UMTA), Department of Transportation.

The largest single grant was for \$128.7 million. Awarded in October, the grant representing 80 percent federal funding is for the construction of the deep bore tunnels of the Red Line Extension between Harvard Square, Cambridge, and Davis Square, Somerville; a new permanent Harvard Station, and a temporary Harvard/Holyoke Station. (In November 1977, a \$42 million grant was awarded for final engineering for the \$546 million, 2.75-mile extension to Alewife Brook Parkway and first-phase construction and land acquisition costs.)

On August 11, Secretary of Transportation Brock Adams travelled to Boston to announce federal approval of the largest project to be undertaken by the MBTA, the \$607.1 million Southwest Corridor Project to relocate the Orange Line and rebuild the paralleling railroad tracks for MBTA commuter rail service and Amtrak's intercity service between Back Bay and Forest Hills, a distance of 4.7 miles.

At the same time, Secretary Adams announced the award of a \$44.7 million grant to cover final design and first-year construction costs of the project. Initial construction contracts are scheduled to be awarded in the Summer of 1979.

The Federal Railroad Administration (FRA) will reimburse the Authority \$62 million as its share of the costs of rebuilding the rail right-of-way that is common to both the Northeast Corridor Improvement Project and the Orange Line Relocation Project.

During 1978, construction activity continued at a record high level with the award of 37 contracts having a value of \$129,648,567.

More than \$100 million of this amount represents construction contracts for the Red Line Extensions from Harvard Square Station to Alewife Brook Parkway, northwest of Boston, and from Quincy Center Station to South Braintree, south of Boston.

Contract awards for the Red Line Northwest in 1978 totaled \$75,442,768, most of which is for construction of the twin deep bore tunnels between Harvard Square and Davis Square, Somerville. Authorized for award in December, but not awarded until February 1979 was a \$71,282,020 contract for the construction of a new permanent Harvard Square Station and bus tunnels, and a temporary Harvard/Holyoke Station.

With the Braintree Extension scheduled to go into revenue service in late 1979, the major construction contract awarded during 1978 was for \$22,692,100 for the intermediate Quincy Adams Station and two 1,000-car parking garages. Completion of this contract is scheduled for early 1981.

In connection with the Southwest Corridor Project, the MBTA is building the South Cove Tunnel which will be the connecting link between the existing Orange Line and the relocated line in the rail corridor. A groundbreaking ceremony for construction of an additional 2,950 feet of the tunnel was held on January 16, 1978.

With UMTA's approval, a Southwest Corridor Educational Training Program was instituted in the Summer for high school students who live in Corridor neighborhoods to help them enter construction-related professions and to increase representation of minorities and low income persons in these professions. The program was expanded in the Fall to include non-students and is continuing in 1979.

Also related to the Southwest Corridor Project is restoration of the Midlands Division (Dorchester Branch) railroad which will be used by most MBTA commuter rail trains and all Amtrak trains during the five-year relocation and reconstruction project. Passenger service on this new route is scheduled to begin in the Summer/Fall of 1979.

Improvements along the Franklin Branch at railroad stations and parking lots continued; construction began on layover facilities at Franklin and at Rockport to eliminate overnight-idling of locomotives during the Winter months, and track rehabilitation work began at Gloucester, Ipswich and Fitchburg.

About \$14.5 million in two UMTA grants was awarded to continue the immediate and long-range needs to improve the Authority's power generating and distribution systems. Contracts exceeding six million dollars were awarded for the South Boston Power Station.

Other construction projects getting underway in 1978 were for new maintenance and repair facilities for trackless trolleys in North Cambridge and for the Light Rail Vehicles at the Green Line's Lake Street terminal of the Commonwealth Avenue Line.

Planning studies continued for an extension of the Blue Line to Lynn; adding a Columbia Station stop to the Red Line's South Shore Extension, and converting the South Station railroad terminal into a Transportation Center for intercity and commuter rail trains and buses. As a first step, the MBTA signed a purchase and sale agreement with the Boston Redevelopment Authority on October 13, 1978 to acquire South Station.

1978 CONSTRUCTION CONTRACT AWARDS

<u>DATE OF AWARD</u>	<u>TITLE OF CONTRACT</u>	<u>AWARD AMOUNT</u>
3/10/78	Rehabilitation of Existing Boilers & Auxiliaries South Boston Power Station	\$ 1,575,952
4/27/78	Retaining Wall & Plantings, Medford St. & Orange Line, Malden	12,832
4/28/78	Signal & Communications System, Midland Branch Restoration, Boston & Milton	4,950,000
5/ 8/78	Lake St. Maintenance Facility, Green Line, Newton	1,002,000
5/11/78	Construction of Wonderland Substation, Blue Line, Revere	897,000
5/11/78	Station Improvements, Franklin Branch	1,456,892
5/11/78	Demolition of Building & Site Clearance, Red Line Braintree Extension, South Quincy	58,900
6/ 2/78	Temporary Commuter Rail Station at Porter Square, Cambridge, Red Line Harvard-Alewife Extension	271,000
6/27/78	Renovation Materials Testing Lab, Dorchester	275,700
6/27/78	Wastewater Control Facility, South Boston Power Station	163,000
6/27/78	Combustion Turbine Generator Installation, South Boston Power Station	1,044,001
6/27/78	Traffic Maintenance Area-Wide By-Pass Signing, Red Line Harvard-Alewife Extension, Cambridge and Somerville	73,750
6/27/78	Pilot Tunnel, Porter Square, Red Line Harvard-Alewife Extension	1,140,875
6/16/78	Security Fencing, Everett Shops & Yard	27,934
7/18/78	Layover Facility, Franklin	1,025,920
7/27/78	Harvard Square Utility Relocation, Red Line Harvard- Alewife Extension	179,710
8/17/78	Renovation of Storage and Loading Facilities, Everett Shops	105,000
8/17/78	Reroofing & Rehabilitation of Woodworking & Storage Building, Everett Shops	382,378
8/11/78	Relocation 48" Water Main, Porter Square, Red Line Harvard-Alewife Extension	1,509,160
8/17/78	Haulroad Construction & Preparation of Cambridge City Dump, Red Line Harvard-Alewife Extension	405,623
9/14/78	Blue Line Communications System Phase II	189,418
9/14/78	Everett Substation & Staniford Street Duct	981,480
9/14/78	Trackwork & Bridge Renovation at Readville, Midland Branch Restoration	1,548,180
9/14/78	Parking Lot Paving & Shelter at Riverside, Green Line	89,647
10/23/78	Ashmont Station Safety Fence & Gates, Red Line	22,625
10/10/78	Rockport Layover Facility	788,296
10/27/78	Union Street & Ivory Street Improvements, South Braintree, Red Line Braintree Extension	2,709,005
10/11/78	Trackless Trolley Repair Facility, North Cambridge	1,308,489
10/25/78	Porter Square to Harvard Square Tunnels & Shafts, Red Line Harvard-Alewife Extension	47,478,600
10/20/78	Right-of-Way Fencing, Mattapan to Capen Street, Mattapan High-Speed Trolley Line	11,130
10/26/78	Modernization of Green Street Station, Orange Line	409,000

<u>DATE OF AWARD</u>	<u>TITLE OF CONTRACT</u>	<u>AWARD AMOUNT</u>
11/20/78	Repairs to Peabody Square Tunnel Roof and Fields Corner Bus Ramps, Red Line	\$218,800
12/14/78	Quincy Adams Station, Parking Garages & Toll Plaza, South Quincy, Red Line Braintree Extension	22,692,100
12/ 6/78	Demolition of Buildings Central Square, Lynn, Proposed Blue Line Extension	64,650
12/27/78	Davis Square to Porter Square Tunnels & Shafts, Red Line Harvard-Alewife Extension	24,384,050
12/27/78	Storage, Rail Bending & Tie Fabrication Shops, Everett	6,801,050
12/29/78	Steam Generator Plant Installation, South Boston Power Station	<u>2,394,420</u>
	TOTAL	\$129,648,567

NOTE: On December 29, 1978, the Board of Directors authorized a \$71,282,020 contract award, subject to approval by the Urban Mass Transportation Administration (UMTA), for construction of the Harvard Square Permanent Station & the Harvard/Holyoke Temporary Station. UMTA concurred on February 16, 1979, and the contract was awarded February 21, 1979.

FEDERAL GRANTS IN 1978

(in thousands)

1978 UMTA SECTION 3 CAPITAL GRANTS

<u>PROJECTION DESCRIPTION</u>	<u>FEDERAL SHARE</u>	<u>LOCAL SHARE</u>	<u>TOTAL</u>
Station Mod. - Phase III (Engrg.)	\$ 2,023	\$ 506	\$ 2,529
Track Improvements - Phase I	9,254	2,313	11,567
Commuter Rail Coaches	18,970	4,743	23,713
Green Line Improvements - Amendment	4,318	1,080	5,398
Transit Efficiency - Auto Restricted Zone Amendment	583	146	729
Rehab. Everett Maintenance Facil. (Engrg.)	886	221	1,107
Immediate Needs Power - Amendment	5,400	1,350	6,750
Power Improvements - Amendment	<u>9,109</u>	<u>2,277</u>	<u>11,386</u>
Subtotal	\$50,543	\$12,636	\$63,179

UMTA INTERSTATE TRANSFER CAPITAL GRANTS

Southwest Corridor - OL Restoration	\$44,675	\$11,169	\$55,844
Commuter Rail - CRIP Phase III	20,260	5,065	25,325
Red Line Northwest Extension	<u>128,745</u>	<u>32,186</u>	<u>160,931</u>
Subtotal	\$193,680	\$48,420	\$242,100

UMTA SECTION 17 OPERATING ASSISTANCE

Commuter Rail Operating Assistance Amendment	\$ 5,964	\$ 1,034	\$ 6,998
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UMTA INTERSTATE TRANSFER TECHNICAL STUDY GRANTS

Unified Work Program - Amendment	\$ 6,320	\$ 1,580	\$ 7,900
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UMTA SECTION 9 TECHNICAL STUDY GRANT

Bus Service Evaluation Study	\$ 130	\$ 33	\$ 163
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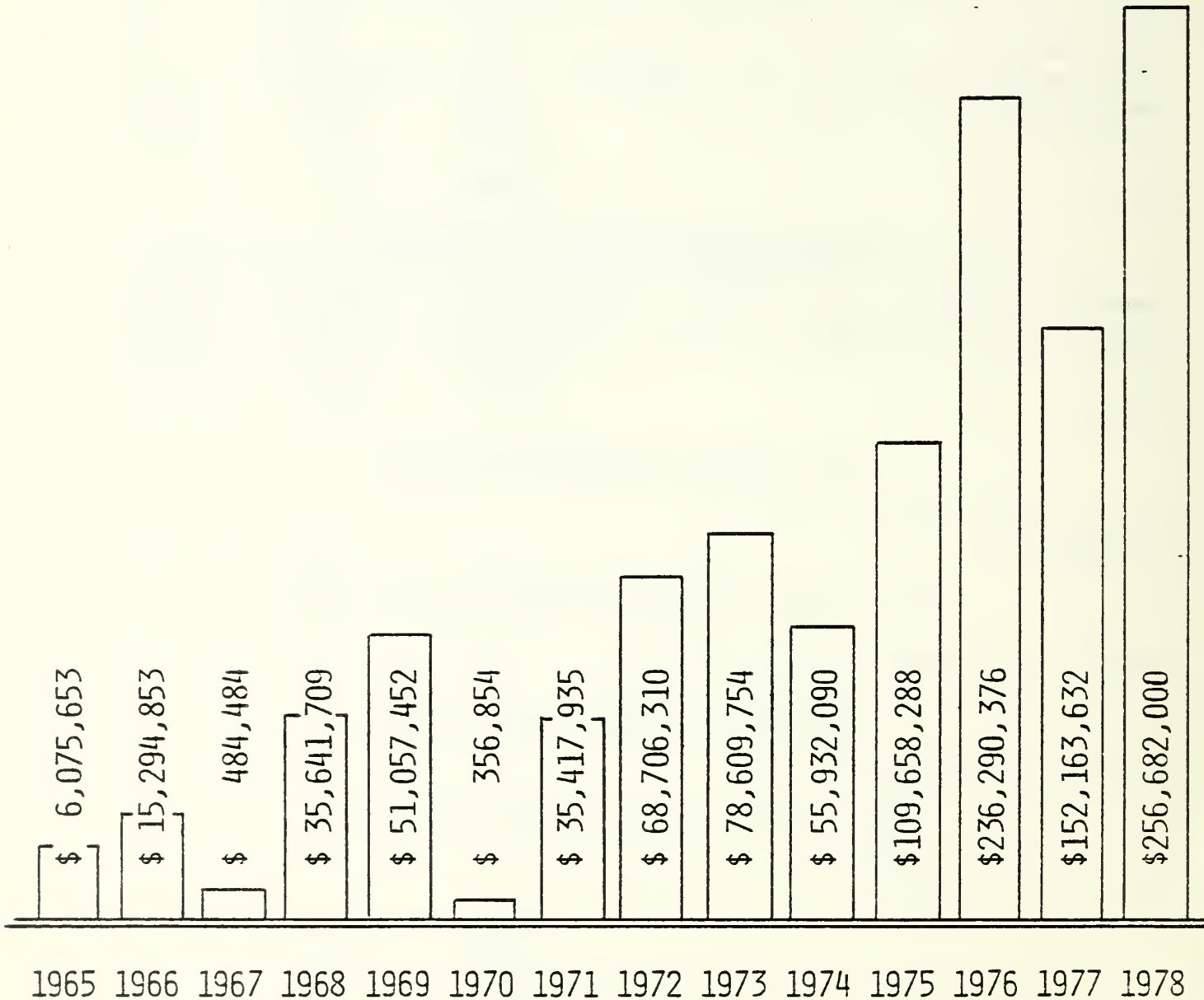
UMTA SECTION 7 RESEARCH & DEVELOPMENT GRANT

Transit Station Art Design	\$ 45	\$ -	\$ 45
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	<u>FEDERAL SHARE</u>	<u>LOCAL SHARE</u>	<u>TOTAL</u>
Grand Total	\$256,682	\$63,703	\$320,385

FEDERAL GRANTS AND LOANS

CALENDAR YEARS 1965 - 1978



TOTAL: \$1,102,371,390

SOURCE OF FUNDS

CATEGORY	DOT #	LOCAL SHARE PERCENTAGE	FEDERAL SHARE PERCENTAGE	OTHER AID PERCENTAGE	TOTAL
Commuter Rail Track	L-MA-0226-0	0%	100%	0%	\$ 2,500,000
Haymarket North	MA-03-0005	49%	44%	7%	184,245,000
	MA-03-0003				
South Shore	MA-03-0004	59%	38%	3%	103,099,000
Cabot Transportation Center	MA-03-0007	30%	54%	16%	46,445,000
Mini-Program	MA-03-0010	34%	66%		4,804,000
310 Bus Program	MA-03-0011	33%	67%		12,150,000
Green Line Impts.	MA-03-0015	30%	69%	1%	57,162,000
Station Mod. - Phase 2	MA-03-0013	33%	67%		14,668,000
Green Line Equip.	MA-03-0022	30%	69%	1%	66,492,000
Plant Impts. - Phase I	MA-03-0017	23%	77%		9,531,000
Safety	MA-03-0025	33%	66%	1%	16,440,000
New Rapid Transit Cars (190)	MA-03-0024				
	MA-23-9002	24%	76%		104,000,000
Plant Impts. - Phase II	MA-03-0026	33%	66%	1%	12,583,000
Trackless Trolleys	MA-03-0028	29%	71%		4,161,000
Orange Line Rest.	MA-03-0029	22%	78%		5,990,000
Mod. 88 Red Line Cars	MA-23-9009	20%	80%		17,646,000
Power Impts. - Phase I - IV	MA-03-0019	20%	80%		59,082,285
125 Bus Acquis.	MA-03-0018	20%	80%		6,932,000
South Braintree	MA-23-9001	20%	80%		57,671,000
Charlestown Bus Garage	MA-03-0016	20%	80%		26,896,000
Plant Impts. - Phase III	MA-03-0031	20%	80%		17,417,000
Immediate Needs Power	MA-03-0037	20%	80%		23,388,300
Purch. Serv. Bus Line	MA-03-0042	20%	80%		256,000
Rest. Track Supp. Structure	MA-03-0036	20%	80%		3,158,000
Plant Improv. - Phase IV	MA-03-0078	20%	80%		485,100*
CRIP - Phase I	MA-03-0040	20%	80%		13,634,000
Purchase 243 New Buses	MA-03-0033	20%	80%		17,914,000
Midland Branch Restoration	MA-23-9004	20%	80%		19,600,300
35 Commuter Rail Coaches	MA-03-0072	20%	80%		23,750,000
South Cove Project	MA-23-9005	20%	80%		33,688,000
South Quincy RT Station	MA-03-0049	20%	80%		26,269,300
CRIP - Phase II	MA-23-9006	20%	80%		57,886,000
PCC Rebuild	MA-03-0053	20%	80%		8,015,300
Harvard Square to Arlington Heights	MA-23-9008	20%	80%		213,442,250
Transit Efficiency-Phase I	MA-03-0054	20%	80%		10,824,000
Power Cable - Phase I	MA-03-0051	20%	80%		8,000,000
Section 17-Deferred Maint.	MA-17-0001	13%	87%		1,963,000
Station Mod. - Phase III	MA-03-0056	20%	80%		2,329,000
Track Impts. - Phase I	MA-03-0051	20%	80%		11,567,000
Orange Line Relocation (SW)	MA-23-9007	20%	80%		55,800,000
CRIP - Phase III	MA-23-9011	20%	80%		23,325,000
Everett Maintenance Facility (Engineering)	MA-03-0043	20%	80%		1,101,250
TOTALS	Dollars	\$401,888,757	\$941,291,028	\$24,584,000	\$1,388,028,785
	Percent	29%	69%	2%	100%
Closed out Federally Assisted Projects		20,795,000	9,648,000	1,275,300	31,718,300
100% Locally Funded Capital Projects Technical Studies, Demo Grants, etc.		44,337,000	28,208,000	2,219,000	74,764,000
TOTALS	Dollars	\$467,020,757	\$979,147,028	\$28,078,000	\$1,494,505,785
	Percent	31%	67%	2%	100%

*Includes funds approved under Letters of No Prejudice

MATERIALS DIRECTORATE

The Materials Directorate issued over 10,000 contracts and purchase orders during 1978 for a total volume of over \$100 million.

Large purchases included: an estimated 398,000 gallons of #6 Fuel oil at a cost of \$5,363,040 for use at the South Boston Power Station for power generation; about 7.1 million gallons of #1 diesel fuel at a cost of \$2,843,550 for the bus fleet; and about 1,334,000 gallons of aviation turbine fuel (jet fuel) at a cost of \$553,728 for the new combustion turbine generator at the South Boston Power Station. In addition, the tire mileage (26 million miles annually) contract was extended for another 21 months at a cost of \$403,279 and two jet engine snow blowers and one spare jet engine were purchased at a cost of \$196,072 to clear snow from rapid transit tracks.

NEW VEHICLES

The Materials Directorate was involved in administering new and ongoing transit vehicle procurement programs, totaling more than \$164.6 million. The procurement of 70 Blue Line and 120 Orange Line cars, at a cost of \$115 million, is the largest single procurement contract ever issued by the MBTA. Six No. 4 East Boston Blue Line cars were delivered to the Orient Heights Carhouse; the remaining cars are due in September 1979. Orange Line cars are scheduled for initial delivery in June 1979 and the order completed in the second quarter of 1980. A facility at Everett is being modernized to accommodate receipt of \$4 million worth of spare parts for these cars.

Within 11 months of the execution of a \$28 million contract with Pullman Standard, the first coach was delivered in the Fall. The remaining coaches will be received during 1979. Efforts by the Materials staff to negotiate with UMTA for funding approval to purchase an additional 60 coaches at the 1977 Pullman prices were unsuccessful and the deadline for exercising the offer for the additional coaches expired.

In 1978, the MBTA received 13 new locomotives from General Motors' Electromotive Division. An order for 17 rebuilt locomotives was placed with the Illinois Central Gulf Railroad; delivery is expected in 1979.

In early 1978, considerable effort was expended in order to lease 60 coaches with a seating capacity of 98 per coach for two years from the Toronto Area Transit Operating Authority at a price of \$45 per day per coach duty free (Temporary Import Under Bond). The bond is for a one-year period which must be renewed. The coaches, upon expiration of the two-year lease, will be returned to Toronto.

A \$2.2 million order was placed in October with General Motors of Canada Limited for 25 turnpike transit buses. These buses are scheduled for delivery in July 1979 and will be used for the Needham Commuter Rail substitute service.

Major equipment purchases of over \$2.5 million were awarded to transit industry manufacturers for the rebuilding programs of the 90 Cambridge-Dorchester Red Line cars and for 50 PCC Green Line cars.

In order to meet the materials needs required for LRV support, a Central Storeroom was established in June at Riverside from which renewal parts, contract spares, and capital assemblies and components are received, stored and disbursed via the Authority's inventory control system. In November, the Materials Directorate assumed the responsibility for expediting the return of all LRV parts within the warranty cycle, and for the preparation and administration of non-warranty repair contracts with Boeing Vertol and its major sub-contractors.

The Authority has three major distribution centers - at Everett, Charlestown and Riverside. There are over 30,000 inventory items, valued at \$9.2 million in stock.

In conjunction with the MBTA's Transit Efficiency Program, bids were received and contracts awarded for the manufacture, delivery, and installation of Data Communications hardware and software for an on-line Material Information System planned to be in operation in April 1979.

Throughout 1978, the Materials staff continued its efforts to locate additional sources of supply for material currently being procured on a sole-source basis. In addition, this Directorate implemented a system to utilize in-house manufacturing capabilities within the value analysis program by including the MBTA's own shops on the bid list for selected items. Savings realized from these efforts were \$186,096 on 28 items of sole-source material procured from outside alternative sources of supply and \$131,845 on 16 items ordered for manufacture by MBTA Shops through competitive bidding.

POLICE DEPARTMENT

The MBTA Police Department underwent significant administrative changes during 1978. The command structure was revised with the assignment of a lieutenant to serve as assistant to the chief, and later in the year, another lieutenant position was established. The assignment of one lieutenant to days and another to the night shift simplified the chain of command with three sergeants reporting to each of the lieutenants. Two new staff members were also added - a manager of planning and research and a new administrative assistant - both with backgrounds in police planning and administration.

Plans for an automated crime reporting and management system were completed, with implementation expected during the first half of 1979.

By the end of 1978, the police communications program was in operation through the use of mobile and portable two-way radios that established communication from police headquarters at the Cabot Center to all officers on the system, between officers anywhere on the system, and also with other police departments, through the Boston Area Police Emergency Net (BAPERN).

For the third successive year, crime statistics showed a decrease in pick-pocketing, with a 62.2% decrease compared to the 1975 statistics. Other crimes were under the 1976 levels.

COMMUNITY AFFAIRS AND MARKETING DEPARTMENT

The MBTA Pass Program added 376 companies and 13,187 passholders to its roster in 1978 - an increase over 1977 of 42% and 49%, respectively. Increased transit use among passholders accounted for approximately 900,000 new rides for the year. Pass Program income reached \$495,000 (12% of MBTA monthly revenues) in December 1978.

Nineteen participating employers subsidize 50% to 100% of the pass for their employees. As a result, 22% to 34% of their employees have become regular MBTA customers. Promotion of this subsidy continues, while the largest companies are encouraged to implement staggered or flexible work hours for their employees through the Variable Work Hours Program, which proved to be extremely successful during the Blizzard of '78. Pass sales are expected to skyrocket. In 1979, passes will become available to individuals who are not affiliated with participating companies.

Admission discounts for the Institute of Contemporary Art, the Aquarium, WHERE'S BOSTON, the John Hancock Observatory and the Ringling Brothers Circus provided an added incentive to potential passholders to join the program.

Another incentive came from the State Insurance Commissioner who in November granted the MBTA's request for an auto insurance reduction of 10% on property damage and collision coverage carried by automobile owners who commute on the MBTA.

The Marketing Services Section designed, produced and disseminated more route, service and schedule information than in any previous year. The system route map, published in September, was improved and is now available at all Collector's Booths and at many city and town halls and local libraries. Bus and rail timetables were redesigned for easier use and less expensive production. Informational materials were produced for passengers who don't read English but can read Spanish, Chinese, Italian and Portuguese. Dozens of information bulletins on topics of interest to passengers, such as explanations of service disruptions and advance information about schedule changes were distributed at affected locations.

Promotional materials were produced for the Riverside Fare Experiment, called the "Getaway Plan"; "The Oldest and the Newest: An Exhibition of Boston Subway Design" held at the Boston Architecture Center; the auto-restricted zone in Downtown Boston, called Downtown Crossing; and several smaller service improvements.

The Service Planning Section continued to identify specific bus routes for improvements which were implemented to increase ridership potential for very little or no cost. Bus route planning is underway for the opening of the Red Line Braintree Station in late 1979.

A major data collection effort, including ridership and passenger characteristic information, was undertaken by a consultant in 1978 in order to establish a computer data bank in 1979. This data bank will be used to plan future service improvements, more equitably assess the net cost of service (deficit) on the 79 cities and towns, provide better information in support of the proposed capital projects, and fulfill a federal funding requirement to report updated passenger information.

Service Planning, for the second year administered suburban transit programs in Bedford, Natick and Needham. For the three towns, aggregate ridership rose by 26% and vehicle productivity rose by about 21% while the annual net cost for the program increased by only 5%. In October, two additional towns, Lexington and Winchester, were chosen to join the program in 1979.

The Customer Service unit continued to expand and by year's end, was answering 1,300 requests for information daily, up from 850 per day in 1977.

The Senior Citizen's and Special Needs Registration Office issued 17,133 Senior Citizens ID cards and 3,959 Special Needs, half-fare passes. During the Spring and Fall, the staff went on the road visiting 51 locations to give residents of outlying cities and towns an opportunity to obtain a pass without having to travel to Boston. The Registration Office plans to move from Government Center Station to the Washington Station Concourse on March 5, 1979.

OFFICE OF SAFETY

Industrial accidents in 1978 continued to show a decline in injuries involving lost time - an 8.7% reduction! Hours lost due to industrial accidents dropped also from 144,171 hours in 1977 to 132,045 hours in 1978 - an 8.4% improvement. Finally, the number of lost time injuries per 100,000 hours worked decreased from 8.75 in 1977 to 7.6 in 1978.

A three percent increase in traffic accidents reflected the severe weather and hazardous driving conditions in January and February. Passenger accidents or 'on board' incidences declined almost 12 percent compared to 1977.

An eight-hour program of Cardiopulmonary Resuscitation (CPR) for Operations employees was instituted in early March with Safety staff serving as trained instructors. By December 29, 260 employees, most from potentially hazardous working classifications, had been trained.

The First Annual Safety Eyeglass Program for identified eye hazard areas was instituted in March and by the end of December 714 orders for prescription and non-prescription safety eyeglasses had been filled and are being worn by employees.

In June the Office of Safety sponsored and directed, in cooperation with Surface Lines Transportation and with assistance from Public Information and Community Affairs and Marketing, the MBTA's Second Annual Bus Rodeo. Applicant eligibility, based upon the employee's accident/driving record, his work attendance and general performance, for 1977 through 1978, increased nearly 98% over the first Rodeo.

The Office of Safety, in connection with the U.S. Department of Transportation's 504 Handicapped Accessibility proposal, met with Special Need groups and the Operations Planning section during the year to assist in developing procedures for the evacuation of guide-dog-accompanied blind travelers and wheelchair-user passengers from rapid transit trains. In October, a special evacuation drill of a Red Line train was conducted with Special Need groups and the Massachusetts Commission of the Blind participating to determine what problems should be addressed.

OFFICE OF THE TREASURER-CONTROLLER

To fund the Authority's working capital requirements, one-year notes of \$125 million were sold on March 15 and another \$70 million on July 7 at an annual interest rate of 4.66% and 5.47%, respectively. The average interest cost of these temporary notes amounted to only 1.94% because of the interest income earned on the proceeds until they were disbursed.

In December, the Revenue Collection Section moved into a new facility in Charlestown, improving security and providing additional space to handle expanding revenue collection requirements of the Authority.

A vacuum revenue collection system used on the Green Line for the Light Rail Vehicles is very successful in eliminating pilferage losses and improving the efficiency of revenue collection operations. Three bus garages will be converted to this system in 1979.

In July, a Control Data Corporation OMEGA 480 computer was installed, replacing the IBM 360 Model 40 used since June 1967. The new computer significantly expands the Authority's processing capabilities to include instant communication of management information.

During the year, the Data Processing Section, developed: (1) the Financial Accounting and Reporting Elements (FARE) System that is required by the Urban Mass Transportation Act; (2) a Maintenance System that provides detailed performance reports periodically on the Red Line cars, and (3) a Vehicle Inspection System that collects data for processing miles, fuel, oil and inspection information on the bus fleet.

In addition, this Section expanded the Bus Cost Allocation System to include trackless trolley and surface streetcar operations for the local portion of the deficit and began design for comprehensive Material, Inventory, Receiving and Purchasing Systems which will be the first to allow access to information by using cathode ray tubes.

The Internal Audit Section continued to show dollar savings in its audit of third party contracts with the savings in 1978 amounting to \$2,350,872.

Assuming responsibility for the first time for prequalification reviews of contractors requesting to bid on a contract of \$1,000,000 or more, the Audit Section reviewed 154 prequalification statements representing assets of \$13 billion.

This Section also performed several operational audits to provide management with independent and objective appraisals of departmental performance and making constructive recommendations to improve performance.

The Authority's latest Cost Allocation Plan was fully implemented during the year by the Capital Program Control Section which provides independent control over project costs, including all changes made to approved project budgets. This Section also monitors the physical and financial status of the projects to insure that any problems are identified on a timely basis and it monitors and analyzes the status of local share bond funds, authorized by the Legislature for the various federal capital assistance grants.

OFFICE OF THE GENERAL COUNSEL

The Office of the General Counsel provides complete legal services to all departments and to the Chairman and Board of Directors. It also handles legal aspects of the Authority's relationships with federal, state and local governments and with private business. Other major concerns include affirmative action matters and injury and damage suits.

1978 continued to be a disastrous year for the MBTA and the entire transit industry for re-insurance placement. Although rates did not rise so drastically as in 1977, the amount of retention or self-insurance did.

During the year, the General Counsel's Office devoted a large amount of effort to injury and damage cases, disposing of all but four cases arising from the 1973 fire at South Station on the Red Line and all but 75 cases arising from the 1975 collision at Charles Street Station, also on the Red Line.

Negotiations with the Boston Redevelopment Authority and the Federal Railroad Administration (FRA) over the purchase of the South Station terminal Building and properties were a priority of this Office so that the MBTA could move ahead to develop plans for a South Station Transportation Center for railroad passenger trains and buses.

Also in 1978, this Office successfully participated in the negotiations with the FRA for a \$62 million payment to the Southwest Corridor Project for work to be done to improve Amtrak service in the Northeast Corridor.

During the year, the General Counsel's staff worked actively in many phases of affirmative action and minority contracting issues. One of these involving problems of minority bidders for parking lot contracts was successfully concluded.

Other 1978 activities of this Office included land damage suits resulting from land takings, right-of-way proceedings and eminent domain cases; review of federal grants including the securing of 13C labor protective agreements; development and monitoring of legislation as requested by the Chairman and Board of Directors, and contract negotiation, development and review.

1978 LEGISLATION

The following laws affecting the Authority were enacted during the 1978 Session of the General Court:

Chapter 70 - An Act relative to the operation of commuter railroad service by the Massachusetts Bay Transportation Authority.

Chapter 405 - An Act relative to interest arbitration procedures between employee organizations and the directors of the Massachusetts Bay Transportation Authority.

- Chapter 462 - An Act relative to certain rail improvements in the Commonwealth. Amends Chapter 161C and provides funds for acquisition, improvement and development of South Station.
- Chapter 542 - An Act authorizing and directing the City of Cambridge to convey to the Massachusetts Bay Transportation Authority certain easement rights needed for its Red Line extension northwest tunnel construction.
- Chapter 577 - An Act authorizing the Department of Public Works to lease air and other rights over the McLellan Highway and on or over the Massachusetts Bay Transportation Authority Airport Station in the East Boston District of the City of Boston.

The following resolve which affects the Authority was passed during the 1978 Session of the General Court:

- Chapter 19 - Resolve providing for an investigation and study by the Massachusetts Bay Transportation Authority relative to the use of certain air rights over the Highland Branch of the Massachusetts Bay Transportation Authority in the City of Newton.

1979 LEGISLATIVE PROGRAM

The following proposals were filed for consideration by the 1979 Session of the General Court:

1. An Act relative to the financing of the Massachusetts Bay Transportation Authority.

This proposal provides 50 percent contract assistance for MBTA net cost of service and 100 percent assistance for the Authority's net additional expense for providing commuter rail service to communities outside the M.B.T.A. District. This is a permanent proposal.

2. An Act relative to the reimbursement of fuel and special fuel excises to those providing mass transportation services.

Adoptions of this proposal would provide 100 percent reimbursement for fuel excises not currently reimbursed.

3. An Act relative to the transfer of all vehicular bridges carrying public ways over the tracks or rights of way of railroads within the Commonwealth.

This proposal provides that the Massachusetts Department of Public Works take over certain vehicular bridges owned by the MBTA. Legislation previously enacted provided that the MDPW take over care and control of railroad bridges.

4. An Act relative to compliance with federal law, regulation and practice by the Massachusetts Bay Transportation Authority.

Section 29 of Chapter 161A directs the Authority to obtain federal funds. The third sentence of Section 29 provides in essence that federal law, regulations and practices governing federal assistance shall override any inconsistent provisions of Chapter 161A. This proposal would include all laws relating to the MBTA.

5. An Act authorizing and directing the Metropolitan District Commission to convey certain parcels of land in the Cities of Somerville and Medford to the Massachusetts Bay Transportation Authority and to grant permanent surface and subsurface easements for drainage purposes.

This legislation is necessary in order to comply with the agreement between the MDC and the MBTA dated December 8, 1972.

6. An Act further regulating smoking in public conveyances.

The present statute, passed in 1968, contains language providing that one must be requested to cease smoking. This has led to many confrontations between an alleged offender and the police. This legislation deletes the language requiring the request.

7. An Act authorizing and directing the Metropolitan District Commission to convey to the Massachusetts Bay Transportation Authority certain parcels of land in the City of Boston.

This involves two MDC park properties which will be necessary for Southwest Corridor construction.

8. An Act relative to the granting and conveyance of certain easements and interests in land to the Massachusetts Bay Transportation Authority for construction of the Red Line extension.

This is an initial draft of legislation to be filed pending negotiations with other governmental units regarding the Authority's needs for extension of the Red Line from Harvard Square to Alewife Brook Parkway.

9. An Act relative to the operation of electric supply facilities by the MBTA.

This proposal would allow the Authority to contract with the Massachusetts Municipal Wholesale Electric Company for the purchase of bulk electric power. It also would repeal Chapter 628 of the Acts of 1966, the so-called power bill, which prohibits the Authority from disposing of the power facilities.

10. An Act relative to the length of buses that may be operated by the Massachusetts Bay Transportation Authority.

The purpose of this legislation is to add bumpers to certain Authority buses in order to protect the windshields of such buses which now project beyond the overall length.

11. An Act relating to the issuance of refunding bonds by the Boston Metropolitan District.

This legislation would authorize Trustees of the District to issue and sell refunding bonds notwithstanding present limitations imposed by law.

12. An Act relative to fare charged pupils using the facilities of the Massachusetts Bay Transportation Authority.

This would require the Board of Directors to fix a pupil's fare not to exceed one-fifth of the adult cash fare and would eliminate the present transfer system which is widely abused.

13. An Act amending the law relative to the development and improvement of South Station by the Massachusetts Bay Transportation Authority.

This proposal would exempt the South Station from the provisions of the law that prohibits the sale of liquor on MBTA property.

14. An Act relative to claims against the Massachusetts Bay Transportation Authority.

This proposal would impose a \$100,000. limit on claims against the Authority. This is the same amount now applicable to the Commonwealth and cities and towns under recently enacted legislation. It should be noted that there are many exceptions contained in the law applicable to the Commonwealth and cities and towns.

PERSONNEL DIRECTORATE

During 1978, the Labor Relations Section of the Personnel Directorate was involved in negotiations with 14 unions whose contracts had expired December 31, 1977. In July 1978, the Massachusetts Legislature passed an act relative to arbitration procedures at the MBTA. One of its provisions required the parties to proceed to mediation before invoking the arbitration process. As a result, the Authority and Local #589, the Boston Carmen's Union, are currently in mediation in an attempt to settle their differences.

The Clerical Union, Local #6, petitioned the State Labor Relations Commission to add some 40 unaffiliated employees to its membership. After a hearing, this petition was dismissed without prejudice. The Metropolitan Building Trades Council and several other unions filed petitions seeking to represent some 225 unaffiliated supervisory employees. No determination had been made in this case as of December 31. The Starters and Inspectors have petitioned to decertify from the Carmen's Union and to establish their own unit. This case is still under consideration.

There were 11 arbitration hearings in 1978. The Authority's position was upheld in six cases; two cases are yet to be decided, and one case was stipulated.

The Employment Office processed 790 new hires, including 210 temporary people. Promotional competitive written examinations were conducted to establish eligibility lists for seven job classifications.

Workmen's Compensation claims have been steadily increasing from 2,078 in 1976, 2,316 in 1977 to 2,413 in 1978.

The Authority's Management Development Programs were expanded by greater utilization of courses offered by the U. S. Office of Personnel Management (formerly the U.S. Civil Service Training Center) in Boston with over 100 employees attending classes in management or specialized technical areas. The Employee Educational Assistance Plan enrolled 80 employees who took courses to improve their on-the-job performance.

Four MBTA Management Institute Sessions were offered and attended by 61 managers. Basic Orientation for Supervisors was held seven times, with 45 attendees. Two Instructor Training Clinics graduated nine people. Five managerial employees were sponsored for U.S. Department of Transportation Fellowships (aggregating \$21,425) to attend intensive transit management development programs at Northeastern University.

In June, a Recruitment Administrator was added to the Personnel Section's staff to centralize recruitment for managerial, professional and technical positions and to develop a skills bank, categorized into 40 different occupational groups.

WHERE THE RIDERS ARE

Revenue from transportation - the rider's fare - pays for approximately one-fourth of the cost of the public transportation network known as the MBTA.

The tables below show the revenue from the various types of transportation the MBTA operates on the surface and on rails. Revenue to Commuter Railroads is not included in the (T) total Transportation Revenues because this (T) service is operated by the Boston & Maine Corporation and these revenues are included as a reduction in the Commuter Railroad subsidy costs. The streetcar and bus revenue figures from each "rating station" - the garage where bus and streetcar operators pick their route on the basis of their seniority rating - gives a further breakdown of where people use public transportation.

Revenue from Transportation, 1978

Rapid Transit

Orange Line (Oak Grove-Forest Hills)	\$ 6,809,498
Blue Line (Bowdoin-Wonderland)	1,550,477
Red Line (Harvard-Ashmont)	5,769,087
Red Line (South Shore Extension in Quincy)	3,011,726
Green Line Central Subway (Kenmore-Lechmere)	<u>6,691,494</u>
<u>Total Rapid Transit Lines</u>	\$23,832,282

Surface Lines

Streetcar (Green Line: Riverside, Beacon, Arborway, Commonwealth; Mattapan-Ashmont)	\$ 6,042,132
Trackless Trolley (Cambridge, Belmont, Watertown)	1,339,941
Bus (182 Routes)	<u>23,976,174</u>
<u>Total Surface Lines</u>	\$31,358,247

Chartered Bus

	\$ 5,616
<u>TOTAL TRANSPORTATION REVENUE</u>	\$55,196,145

Streetcar Revenue, 1978 by Rating Stations

Reservoir (Green Line: Beacon and Commonwealth)	\$2,916,362
Riverside (Green Line)	2,069,512
Arborway (Green Line)	1,028,688
Mattapan-Ashmont	<u>27,570</u>
<u>TOTAL STREETCAR REVENUE</u>	\$6,042,132

Bus Revenue, 1978 by Rating Stations

Cabot-Albany, Boston	\$ 7,813,101
Arborway, Boston	3,782,272
Somerville and Arlington Heights	3,424,546
Salem Street, Medford; Charlestown; Eagle Street, East Boston	5,324,036
Lynn	1,841,778
Quincy	<u>1,790,441</u>
<u>TOTAL BUS REVENUE</u>	\$23,976,174

Revenue to Commuter Railroads

North Station	\$4,933,073
South Station	<u>3,615,362</u>
<u>Total Commuter Railroads</u>	\$8,548,435

MBTA ASSESSMENT PROCEDURES

A question frequently heard from our customers is "how is my town's MBTA assessment determined?" All 79 cities and towns in the MBTA district pay a share of the MBTA's yearly deficit or net cost of service. The assessment formulas for sharing the deficit were originally spelled out in state legislation passed in 1964 when the old MTA district, serving 14 cities and towns, was enlarged to the present regional transportation district and renamed the MBTA. The formulas have been amended by the legislature from time to time in an effort to make the assessment more fair and equitable.

The legislation defines two basic types of MBTA service, "express service" and "local service". Express service refers to rapid transit service on controlled rights of way, while local service refers to MBTA buses, trackless trolleys and streetcars in local streets. The net cost of providing each of these types of service is calculated separately and allocated by a different formula.

type of service	portion of deficit	who pays	basis for assessment
EXPRESS	75%	all 79 cities & towns	number of commuters
	25%	cities and towns with rapid transit & R.R.	boarding counts (except new stations)
LOCAL	50%	65 cities & towns 14 cities & towns	population (1970)
	50%	cities & towns with bus service	share of losses sustained locally

Express Service. Legislation has divided the assessment for the cost of express service into two parts, a 75% portion, and a 25% portion, each distributed in a different fashion.

The 75% portion of the net cost of express service is shared by all 79 cities and towns in the MBTA, based on the number of "commuters" living in each municipality. The number of commuters in each city and town was determined from the 1970 Federal Census data and included all people who traveled outside their town to their place of work, whether they used public transportation or not. In the case of the City of Boston, the number of commuters was established so that Boston would be responsible for not less than 30% of this 75% portion.

The remaining 25% of the net cost of express service is shared only by those cities and towns that have one or more express service stations. This part of the assessment is proportional to the number of passengers boarding the rapid transit lines at stations in each community. Each year counts are taken to determine the number of passengers boarding at each station and within each town. However, in 1973, the legislature amended the assessment procedure to exclude from the boarding

counts passengers boarding at new rapid transit stations opened after July 1973. This amendment means that a new station in a community will not result in an increase in its assessment for the 25% portion of express service costs.

Local Service. Local service refers to buses, trackless trolleys, and streetcars operating on local streets. As in express service, the formula for assigning the local service deficit is divided into two parts, in this case two equal or 50% portions. Half of the local service deficit is allocated on the basis of population as determined by the most recent Federal Census (1970); but on the weight of 14 Cities and Towns and the 65 Cities and Towns independently. The other 50% of the deficit from local service operations is shared by those cities and towns that have such service, and is based on the proportion of losses incurred in each city or town.

To determine the operating loss incurred in each community, costs are first identified with a mode of service--bus, trackless trolley and streetcar. All direct costs are identified directly with the appropriate mode, and indirect costs are allocated to modes largely based upon the direct charges to each mode each month. Costs by mode are then allocated to specific routes by means of one of six bases depending upon the type of expense involved. Direct costs of operation and maintenance of each rating station (depot), are allocated only to routes emanating from that rating station. For example, costs of operating and maintaining routes from the Quincy Garage are allocated only to the routes in the Quincy Rating Station.

Farebox revenue is sampled on each route four times yearly, and the difference between operating cost and annual revenue determines the yearly profit or loss for each route. This profit or loss is allocated to each city or town on the route, on the basis of mileage. If a town elects to have no local service, buses then make no stops in that town, and the profit or loss from routes passing through that town is distributed among the other towns on the route. For all cities and towns with local MBTA service, the losses and profits from the routes in the community are totaled. Half of the MBTA's local service assessment is then based on the percentage of local service operating losses incurred in each municipality.

As an example of local service assessment, consider a six-mile long bus route, with four miles in Town A and two miles in Town B. Assume that the operating cost for the route was \$100,000 a year. Assume also that farebox revenue on the route was \$40,000 a year. The operating deficit would be \$60,000 a year, the difference between operating cost and revenue. Half of this \$60,000 deficit (\$30,000) would be allocated among the 14 Cities and Towns and the 65 Cities and Towns on the basis of population, and half would be allocated to Towns A and B. Town A would have to pay \$20,000 and Town B would be assessed \$10,000 because the bus route operated twice as many miles in Town A as in Town B.

The MBTA assessment procedures can be summed up by pointing out two objectives in the formulas. The first objective is to recognize that the 79 cities and towns in the MBTA district comprise one regional transportation district, that all municipalities benefit by the system, and therefore all must share some of the deficit. The second objective is to assess a greater portion of the cost of operating the MBTA on those cities and towns that get a greater degree of service. To relieve the burden on local governments, in recent years the state has begun to pay for part of the MBTA deficit. The Federal government is also providing operating subsidies for mass transit under legislation enacted in 1974.

PUBLIC TRANSPORTATION DEFICIT: A BRIEF HISTORY

Since July 1, 1918, public policy in Massachusetts has been that the transportation network in Greater Boston is a public service of such benefit to individuals, businesses and government that the public through real estate taxation pays the difference between income and expenses of operating service.

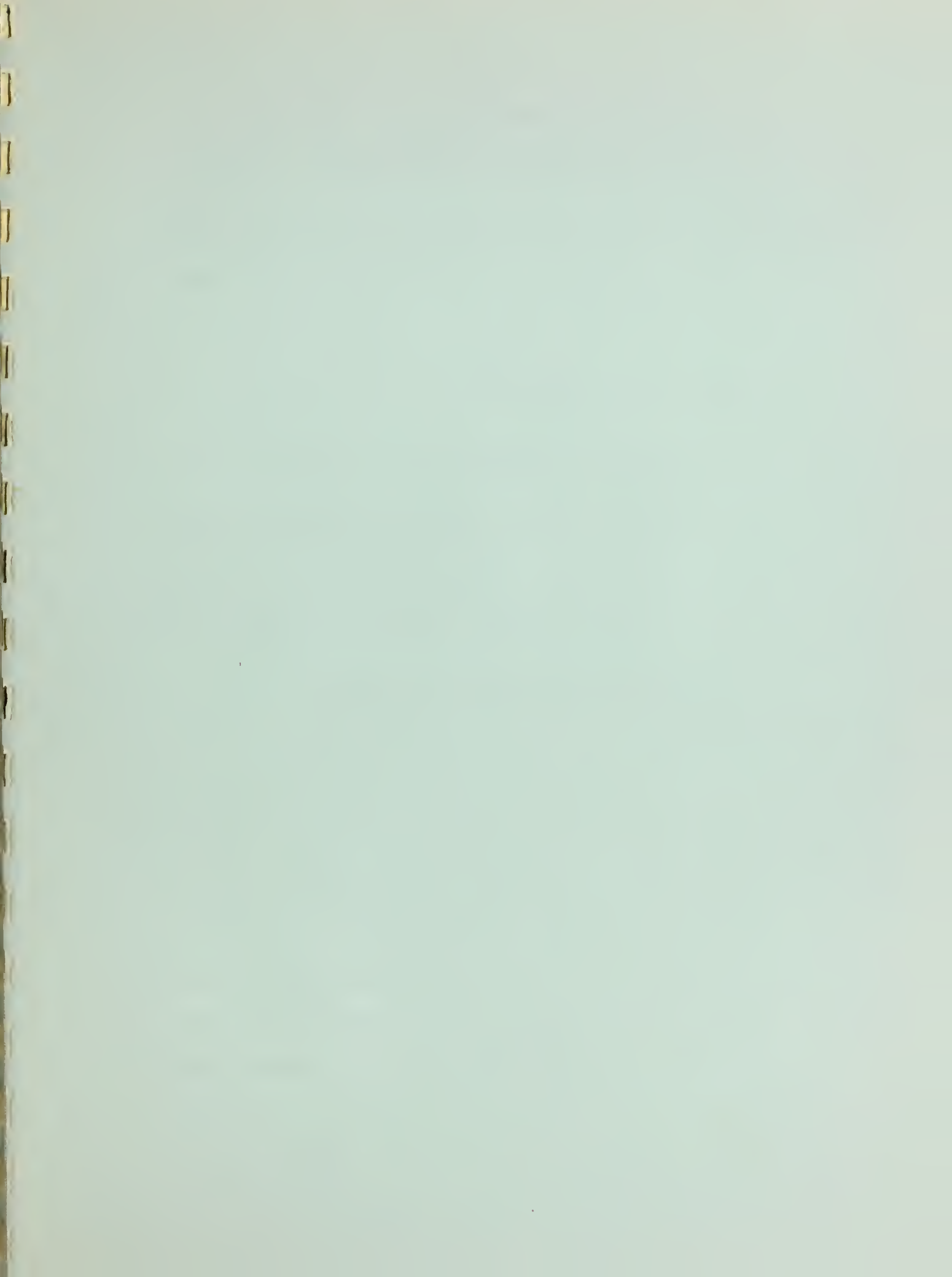
That public policy began when five public trustees began operating the Boston Elevated Railway under the lease conditions of the Public Control Act, passed by the Legislature on May 22, 1918. This was six years after the Boston Elevated Railway Co. reported its first deficit of \$492,000. In 1913, the company lost \$496,000; there were small surpluses in 1914, 1915 and 1916, but in 1917 there was a loss of \$118,000. In the first half of 1918, when "The El" was still under private control, losses amounted to \$572,000 and maintenance was being deferred while the company awaited public takeover. Consequently, a large public investment had to be made and the deficit for the first 12 months of public control was \$3.1 million.

In 52 of the 60 years since 1918, public transportation has incurred a deficit. The eight years of surplus were 1922, 1923, 1925, 1927, 1928, 1929, 1942 and 1943. The surplus was never more than \$1.9 million. The Metropolitan Transit Authority, which ran the system from 1948 through August 3, 1964, had deficits ranging from \$2.8 million to \$21 million. The Massachusetts Bay Transportation Authority has operated the system since 1964.

The rise in operating expenses, especially wages, is directly attributable to inflation. The spiraling costs continue to far outdistance revenue from fares charged and increased numbers of passengers.

The sources of funding for public transit, traditionally passenger revenue and local taxation, were expanded to include the Federal Government with the passage of the Urban Mass Transportation Act of 1974. In 1977, the Authority became eligible for additional assistance in the funding of commuter rail operations. For the year ending December 31, 1978, the Authority recorded \$26,628,398 in Federal Operating Grants and in 1979, expects to receive about \$36,500,000. The total Federal operating assistance received or requested through December 31, 1978 amounts to \$77,772,175.





PART II

FINANCIAL STATEMENTS

DECEMBER 31, 1978 AND 1977

The Authority's financial statements were audited by Arthur Andersen & Co., independent public accountants, and their report is included with the following financial statements:

- Balance Sheet - December 31, 1978 and 1977
- Statement of Revenue and Cost of Service for the Years Ended December 31, 1978 and 1977
- Statement of Unreimbursed Cost of Service for the Years Ended December 31, 1978 and 1977
- Statement of Changes in Financial Position for the Years Ended December 31, 1978 and 1977
- Statement of Bonds Payable - December 31, 1978 and 1977
- Notes to Financial Statements - December 31, 1978 and 1977

Difference in Financial Presentation

The audited financial statements historically reflect a different amount for "Cost of Service in Excess of Revenue" than is shown on the Authority's "Statement of Net Cost of Service" due to different methods of accounting for certain costs and revenues. The audited statements include in cost of service certain non-cash expenditures such as depreciation (computed based on the useful lives of the assets) and interest accrued on Federal loans, and exclude from operating revenue reimbursements from the state and communities outside the MBTA District, whereas the Authority includes principal payments on debt as an expense in lieu of depreciation, and certain reimbursements in income.

The two amounts are reconciled as follows:

"Cost of Service in Excess of Revenue" per Authority's "Statement of Net Cost of Service"	\$ (198,920,197)
ADD: Interest on the Federal Loans not currently assessable, net of property management income and expenses (See Note 11).	(3,178,330)
ADD: Reimbursement for contracted passenger services outside the district, carried by the MBTA as an income item to reduce the amount assessable to other cities and towns	(1,861,462)
ADD: Gasoline and fuel taxes reimbursed by the state carried by MBTA as income	(409,183)
ADD: The amount that depreciation and amortization expense exceeded bond payments during the year (See Note 1, f paragraph 2, page xiii)	(9,604,936)
	<hr/>
Total Cost of Service in Excess of Revenue per Audited Statement	<u>\$ (213,974,108)</u>

ARTHUR ANDERSEN & CO.

BOSTON, MASSACHUSETTS

To the Board of Directors of

Massachusetts Bay Transportation Authority:

We have examined the balance sheet and statement of bonds payable of the MASSACHUSETTS BAY TRANSPORTATION AUTHORITY (a political subdivision of the Commonwealth of Massachusetts) as of December 31, 1978, and December 31, 1977, and the related statements of revenue and cost of service, unreimbursed cost of service, and changes in financial position for the years then ended. Our examinations were made in accordance with generally accepted auditing standards, and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

In our opinion, the accompanying financial statements present fairly the financial position of the Massachusetts Bay Transportation Authority as of December 31, 1978, and December 31, 1977, and the results of its operations and the changes in its financial position for the years then ended, in conformity with generally accepted accounting principles applied on a consistent basis.

Arthur Andersen & Co.

Boston, Massachusetts,

February 16, 1979.

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

BALANCE SHEET - DECEMBER 31, 1978 AND 1977

A S S E T S

	<u>1978</u>	<u>1977</u>
TRANSPORTATION PROPERTY, at cost (Notes 1 and 6):		
Transportation property in service	\$766,052,298	\$700,348,789
Less - Reserve for depreciation	<u>165,914,643</u>	<u>147,338,782</u>
	\$600,137,655	\$553,010,007
Construction in progress (Notes 1 and 6)	175,000,168	53,717,099
Property held for expansion (Note 11)	<u>22,453,650</u>	<u>22,454,050</u>
	<u>\$797,591,473</u>	<u>\$629,181,156</u>
SPECIAL FUNDS, consisting of Cash and Certificates of Deposit:		
Construction funds, held by the bond fiscal agent	\$ 7,838,305	\$ 62,617,640
Federal grants and other special funds (Notes 1, 3 and 8)	<u>2,697,333</u>	<u>1,532,145</u>
	<u>\$ 10,535,638</u>	<u>\$ 64,149,785</u>
CURRENT ASSETS:		
Cash	\$ 7,855,609	\$ 4,664,337
Temporary Cash Investments	26,148,256	56,600,876
Accounts receivable -		
Commonwealth of Massachusetts (Note 13)	153,252,287	27,857,485
Federal Dept. of Transportation (Notes 2 and 12)	28,434,435	6,278,830
Other	5,896,379	5,646,305
Materials and supplies, at average cost	10,134,181	8,123,910
Prepaid expenses	<u>1,155,280</u>	<u>841,962</u>
	<u>\$232,876,427</u>	<u>\$110,013,705</u>
DEFERRED CHARGES (Notes 1 and 9):	<u>\$ 12,755,728</u>	<u>\$ 13,210,301</u>
	<u>\$1,053,759,266</u>	<u>\$816,554,947</u>

The accompanying notes are an integral part
of these financial statements

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

BALANCE SHEET - DECEMBER 31, 1978 AND 1977

L I A B I L I T I E S

	<u>1978</u>	<u>1977</u>
LONG-TERM DEBT, exclusive of current maturities (Note 5):		
Bonds payable (Note 6)	\$ 385,039,039	\$ 397,198,299
Loans payable to Federal Department of Transportation, including accrued interest of \$11,886,331 in 1978 and \$8,612,818 in 1977 (Note 11)	<u>55,546,295</u>	<u>52,273,133</u>
	<u>\$440,585,334</u>	<u>\$449,471,432</u>
UNREIMBURSED COST OF SERVICE (Note 1):	<u>\$ (7,575,870)</u>	<u>\$ (5,722,769)</u>
CURRENT LIABILITIES:		
Current maturities of bonds payable (Note 5)	\$ 12,159,259	\$ 12,334,259
Notes payable (\$125,000,000 @ 4.76% due March 15, 1979 and \$70,000,000 @ 5.60% due July 6, 1979) (\$75,000,000 @ 4.50% due March 15, 1978)(Note 5):	195,000,000	75,000,000
Accounts payable	18,357,652	17,243,469
Accrued liabilities -		
Payroll	1,476,436	1,369,906
Interest	12,643,588	8,568,109
Other	<u>3,904,653</u>	<u>3,711,777</u>
	<u>\$243,541,588</u>	<u>\$118,227,520</u>
COMMITMENTS AND CONTINGENCIES (Notes 1, 4, 6 and 13)		
DEFERRED CREDITS (Note 3):	<u>\$ 6,134,637</u>	<u>\$ 6,404,228</u>
GRANTS (Notes 1 and 8):		
Federal grants	\$ 396,776,945	\$ 263,115,405
Less - Amortization	<u>36,657,265</u>	<u>26,194,753</u>
	<u>\$360,119,680</u>	<u>\$236,920,652</u>
Local grants	11,999,479	11,999,479
Less - Amortization	<u>1,045,582</u>	<u>745,595</u>
	<u>\$371,073,577</u>	<u>\$248,174,536</u>
	<u>\$1,053,759,266</u>	<u>\$816,554,947</u>

The accompanying notes are an integral part
of these financial statements.

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

STATEMENT OF REVENUE AND COST OF SERVICE

FOR THE YEARS ENDED DECEMBER 31, 1978 AND 1977

	<u>1978</u>	<u>1977</u>
OPERATING REVENUE; not including local and Federal assistance:		
Passenger Revenue	\$ 55,196,145	\$ 53,472,739
Other	<u>2,103,421</u>	<u>1,964,694</u>
	<u>\$ 57,299,566</u>	<u>\$ 55,437,433</u>
OPERATING EXPENSES (Notes 10 and 13):		
Transportation Service	\$ 88,497,610	\$ 84,268,729
Maintenance	45,822,072	43,604,488
Electric Power	13,282,710	14,284,325
Depreciation and amortization (Notes 1 and 8)	21,589,195	19,071,677
General and administrative expenses -		
Salaries and wages	10,626,876	9,361,524
Employee pension and insurance benefits (Notes 1 and 4)	27,098,737	26,153,418
Injuries and damages and workmen's compensation claims (Note 1)	4,046,621	4,379,861
Other	<u>2,709,402</u>	<u>4,744,944</u>
	<u>\$ 213,673,223</u>	<u>\$ 205,868,966</u>
Operating loss	\$ (156,373,657)	\$ (150,431,533)
OTHER INCOME, including interest of \$7,674,495 in 1978 and \$4,454,453 in 1977	8,099,828	4,579,221
INTEREST EXPENSE, including \$23,857,583 on long-term debt in 1978 and \$21,331,477 in 1977	(34,316,453)	(25,792,928)
RAILROAD COMMUTER EXPENSE, net, including amortization of the original Railroad Contract Assistance Program of \$350,000 in 1978 and \$325,000 in 1977 (Notes 2 and 9)	<u>(31,383,826)</u>	<u>(27,016,776)</u>
Cost of service in excess of revenue (Note 13)	<u>\$ (213,974,108)</u>	<u>\$ (198,662,016)</u>

The accompanying notes are an integral part
of these financial statements.

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

STATEMENT OF UNREIMBURSED COST OF SERVICE

FOR THE YEARS ENDED DECEMBER 31, 1978 AND 1977

	<u>1978</u>	<u>1977</u>
BALANCE AT BEGINNING OF YEAR	\$ (5,722,769)	\$ (3,535,379)
ADD - Cost of service in excess of revenue	(213,974,108)	(198,662,016)
DEDUCT:		
Cost of service reimbursed by the Commonwealth of Massachusetts to be assessed to the cities and towns constituting the Authority (Note 7)	74,048,972	78,974,567
Contract Assistance, portion of the cost of service paid by the Commonwealth of Massachusetts in accordance with a contract for financial assistance between the Authority and the Commonwealth (Note 7)		
Assistance pursuant to House Bill 1, 1979, pending, and Chapter 367 of the Acts of 1978	72,241,000	62,732,000
Assistance pursuant to Chapter 563 of the Acts of 1964 and Chapter 1140 of the Acts of 1973, as amended	24,696,562	21,532,455
Other	1,305,265	501,564
Federal Operating Assistance pursuant to the Urban Mass Transportation Act of 1964, as amended		
Section 5 (Note 12)	22,487,422	16,861,566
Section 17 (Notes 2 and 12)	4,140,976	5,338,500
Cost of service reimbursed by the cities and towns outside the Authority's area	1,861,462	1,384,148
State diesel and gasoline fuel taxes reimbursable to the Authority in accordance with Section 2 of Chapter 563 of the Acts of 1964	409,183	412,469
Amortization of grants (Notes 1 and 8)	10,762,497	8,569,689
Amortization of deferred credits (Note 3)	167,668	167,668
BALANCE AT END OF YEAR	<u>\$ (7,575,870)</u>	<u>\$ (5,722,769)</u>

The accompanying notes are an integral part of these financial statements

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY
STATEMENT OF CHANGES IN FINANCIAL POSITION
FOR THE YEARS ENDED DECEMBER 31, 1978 AND 1977

	<u>1978</u>	<u>1977</u>
FUNDS WERE USED FOR:		
Cost of service in excess of revenue	\$213,974,108	\$198,662,016
Less - Charge to cost of service in excess of revenue which did not require funds -		
Depreciation of transportation property	(20,924,309)	(18,458,197)
Amortization of deferred charges	(1,014,886)	(938,480)
Interest accrued on loan from Federal Department of Transportation	<u>(3,273,562)</u>	<u>(3,331,870)</u>
	\$188,761,351	\$175,933,469
Additions to transportation property, net	\$189,334,626	\$ 82,230,473
Increase in special funds	-	35,680,700
Increase in deferred charges	560,313	2,436,786
Decrease in bonds payable	12,159,259	12,334,259
Other	<u>102,324</u>	<u>19,207</u>
Total funds used	<u>\$390,917,873</u>	<u>\$308,634,894</u>
FUNDS WERE PROVIDED BY:		
Net cost of service reimbursable by the Commonwealth of Massachusetts for the deficit to be assessed to the cities and towns constituting the Authority	\$ 74,048,972	\$ 78,974,567
Issuance of long term debt	-	75,000,000
Contract assistance received from the Commonwealth of Massachusetts	98,242,827	84,766,019
Federal Operating Assistance	26,628,398	22,200,066
Reimbursements by the Commonwealth of Massachusetts of state diesel and gasoline fuel taxes	409,183	412,469
Reimbursement by cities and towns outside the Authority's area for service provided	1,861,462	1,384,148
Grants from Federal and other sources	133,661,538	42,896,147
Decrease in special funds	<u>53,614,147</u>	<u>-</u>
Total funds provided	<u>\$388,466,527</u>	<u>\$305,633,416</u>
RESULTING IN A WORKING CAPITAL DECREASE OF:	<u>\$ 2,451,346</u>	<u>\$ 3,001,478</u>
CHANGES IN ELEMENTS OF WORKING CAPITAL CONSIST OF:		
Increase (decrease) in current assets -		
Cash	\$ 3,191,272	\$ 1,671,439
Temporary cash investments	(30,452,620)	22,329,180
Accounts receivable	147,800,481	7,007,830
Materials and supplies	2,010,271	553,665
Prepaid expenses	<u>313,318</u>	<u>628,348</u>
	\$122,862,722	\$ 32,190,462
Increase (decrease) in current liabilities -		
Current maturities of bonds payable	\$ (175,000)	\$ 605,000
Notes payable	120,000,000	25,000,000
Accounts payable	1,114,183	4,756,923
Accrued liabilities	<u>4,374,885</u>	<u>4,830,017</u>
	<u>\$125,314,068</u>	<u>\$ 35,191,940</u>
Decrease in working capital	<u>\$ 2,451,346</u>	<u>\$ 3,001,478</u>

The accompanying notes are an integral part
of these financial statements

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

STATEMENT OF BONDS PAYABLE

DECEMBER 31, 1978 AND 1977

Massachusetts Bay Transportation Authority General Transportation System Bonds issued under General Laws, Chapter 161A, Section 23 of the Commonwealth of Massachusetts, are all payable in annual installments on March 1; interest is payable semiannually on March 1 and September 1

1967 Series A Bonds dated March 1, 1967 - The proceeds of the sale of the 1967 Series A Bonds were required to be used for payment of \$40,000,000 of Bond Anticipation Notes outstanding and the balance of \$70,000,000 was required to be deposited in the Bond Proceeds accounts. These bonds were issued to provide funds for the purposes outlined below. The debt outstanding at December 31, 1978 and 1977 is as follows:

<u>Purpose</u>	<u>Year of Maturity</u>	<u>Approximate Annual Payment</u>	<u>Average Interest Rate</u>	<u>1978</u>	<u>1977</u>
Express service transportation facilities	2007	\$1,900,000	3.81%	\$55,100,000	\$57,000,000
Agreement with railroads	1982	350,000	3.75	1,400,000	1,750,000
Buses and other purposes	1979	325,000	3.75	325,000	650,000
Local service transportation facilities	2007	50,000	3.81	1,450,000	1,500,000
Capital cost of certain transportation facilities including yards, shops and rolling stock	2007	650,000	3.81	<u>18,850,000</u>	<u>19,500,000</u>
				<u>\$77,125,000</u>	<u>\$80,400,000</u>

1970 Series A Bonds dated September 1, 1970 - The proceeds of the sale of the 1970 Series A Bonds were required to be used for payment of \$5,365,000 of Bond Anticipation Notes outstanding and the balance of \$61,500,000 was required to be deposited in the Bond Proceeds accounts. These bonds were issued to provide funds for the purposes outlined below. The debt outstanding at December 31, 1978 and 1977 is as follows:

<u>Purpose</u>	<u>Year of Maturity</u>	<u>Approximate Annual Payment</u>	<u>Average Interest Rate</u>	<u>1978</u>	<u>1977</u>
Express service transportation facilities	2010	\$1,540,000	6.45%	\$49,180,000	\$50,720,000
Buses and other purposes	1982	295,000	6.00	1,140,000	1,435,000
Purchase and improvement of the Cambridge Subway	1980	185,000	6.00	<u>370,000</u>	<u>555,000</u>
				<u>\$50,690,000</u>	<u>\$52,710,000</u>

STATEMENT OF BONDS PAYABLE

DECEMBER 31, 1978 AND 1977

(Continued)

1972 Series A Bonds dated September 1, 1972 - The proceeds of the sale of the 1972 Series A Bonds were used for payment of \$8,000,000 of Bond Anticipation Notes and the balance of \$32,000,000 was deposited in the Bond Proceeds accounts. These bonds were issued to provide funds for the purposes outlined below. The debt outstanding at December 31, 1978 and 1977 is as follows:

<u>Purpose</u>	<u>Year of Maturity</u>	<u>Approximate Annual Payment</u>	<u>Average Interest Rate</u>	<u>1978</u>	<u>1977</u>
Express service transportation facilities and other capital costs of the transportation system	2012	\$865,000	5.23%	\$29,310,000	\$30,175,000
Bus acquisition	1984	295,000	5.40	1,750,000	2,045,000
Bus garages	1984	165,000	5.40	<u>990,000</u>	<u>1,155,000</u>
				<u>\$32,050,000</u>	<u>\$33,375,000</u>

1974 Series A Bonds dated June 1, 1974 - The proceeds of the sale of 1974 Series A Bonds were deposited in the Bond Proceeds accounts. These bonds were issued to provide funds for the purposes outlined below. The debt outstanding at December 31, 1978 and 1977 is as follows:

<u>Purpose</u>	<u>Year of Maturity</u>	<u>Approximate Annual Payment</u>	<u>Average Interest Rate</u>	<u>1978</u>	<u>1977</u>
Express service transportation facilities and other capital costs of the transportation system	2014	\$1,800,000	6.24%	\$64,200,000	\$66,000,000
Bus and trackless trolley acquisition	1986	300,000	7.00	<u>2,400,000</u>	<u>2,700,000</u>
				<u>\$66,600,000</u>	<u>\$68,700,000</u>

1977 Series A Bonds dated September 1, 1977 - The proceeds of the sale of 1977 Series A Bonds were deposited in the Bond Proceeds accounts. These bonds were issued to provide funds for the purposes outlined below. The debt outstanding at December 31, 1978 and 1977 is as follows:

<u>Purpose</u>	<u>Year of Maturity</u>	<u>Approximate Annual Payment</u>	<u>Average Interest Rate</u>	<u>1978</u>	<u>1977</u>
Express service transportation facilities and other capital costs of the transportation system	2017	\$1,875,000	5.91%	\$74,200,000	\$75,000,000

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

STATEMENT OF BONDS PAYABLE

DECEMBER 31, 1978 AND 1977

(Continued)

Boston Metropolitan District Bonds - These bonds were issued for transit purposes prior to formation of the Massachusetts Bay Transportation Authority in 1964. On Construction Bonds, the remaining balances after annual payments through the year of maturity as noted below are payable in the year of maturity, however, the Authority intends to refinance these amounts and the \$4,590,000 maturing in 1979 has been included in long term debt.

<u>Purpose</u>	<u>Year of Maturity</u>	<u>Approximate Annual Payment</u>	<u>Average Interest Rate</u>	<u>1978</u>	<u>1977</u>
Boston Elevated Railway Company and Metropolitan Transit Authority debt	2020	\$1,000,000	4.35%	<u>\$41,918,372</u>	<u>\$42,918,372</u>
Purchase of City of Boston Transit properties	2024	536,259	4.27	<u>\$24,667,926</u>	<u>\$25,204,186</u>
Equipment Serial Bonds	1978	174,000	3.00%	-	\$ 174,000
	1981	127,000	1.50	\$ 381,000	508,000
	1987	127,000	2.90	1,147,000	1,275,000
	1988	131,000	2.90	1,310,000	1,441,000
	1993	169,000	3.00	2,535,000	2,704,000
	1993	100,000	3.20	<u>1,500,000</u>	<u>1,600,000</u>
				<u>\$6,873,000</u>	<u>\$7,702,000</u>
Construction Bonds	1979	102,000	2.00%	\$4,692,000	\$4,794,000
	1981	84,334	1.50	4,034,667	4,119,000
	1982	22,000	2.10	1,078,000	1,100,000
	1983	47,000	2.75	2,350,000	2,397,000
	1984	10,000	2.30	510,000	520,000
	1988	55,000	3.00	3,025,000	3,080,000
	1989	69,667	3.60	3,901,333	3,971,000
	1990	19,000	3.50	1,083,000	1,102,000
	1993	40,000	3.20	<u>2,400,000</u>	<u>2,440,000</u>
				<u>\$23,074,000</u>	<u>\$23,523,000</u>
				\$397,198,298	\$409,532,558
Less - Current maturities of bonds payable				<u>12,159,259</u>	<u>12,334,259</u>
Bonds payable - Long term				<u>\$385,039,039</u>	<u>\$397,198,299</u>

The accompanying notes are an integral part
of these financial statements.

NOTES TO FINANCIAL STATEMENTS

DECEMBER 31, 1978 AND 1977

(1) Summary of Significant Accounting Policies

(a) Transportation Property

Transportation property is stated at historical cost. Such costs may include MBTA labor costs for employees working on capital projects plus related fringe benefits and an allocated share of general and administrative costs. The cost of funds required to finance the expansion of the transportation system is expensed currently.

(b) Depreciation

Depreciation is provided in the accounts based on the straight-line method at rates which are designed to amortize the original cost of the property over its estimated useful life. The major categories of transportation property and the depreciation rates used in 1978 are:

	Rates			Cost	
	Low	High	Average	1978	1977
Ways and structures	1.23%	10.00%	2.13%	\$538,280,228	\$487,523,945
Equipment	2.00%	18.00%	5.29%	179,228,228	164,280,602
Land	-	-	-	48,543,842	48,544,242
				<u>\$766,052,298</u>	<u>\$700,348,789</u>

(c) Deferred Charges

Certain costs incurred by the Authority, primarily related to the expansion and modernization of the transportation system, as further described in Note 9, have been capitalized. These costs are then amortized by charges to cost of service over the future periods in which the benefit to the Authority is estimated to be realized.

(d) Injuries and Damages

The Authority is a self-insurer on claims for injuries and damages to the extent of \$2,100,000 per accident. Insurance coverage is carried on claims in excess of that amount up to a maximum limit of \$15,100,000, with the Authority as a self-insurer for 8% of damages between \$2,100,000 and \$5,100,000 per accident.

The Authority accounts for injuries and damages by charges to operating expenses as payments are made. In addition, the Authority has established a public liability fund amounting to \$1,152,000 at December 31, 1978 and \$725,000 at December 31, 1977 because of the significant increase in self-insurance limits in those years.

(e) Workmen's Compensation Insurance

The Authority is a self-insurer on claims for workmen's compensation to the extent of \$150,000 per occurrence, and 50% of claims between \$150,000 and \$300,000. Insurance coverage is carried on each occurrence in excess of that amount up to a maximum limit of \$4,150,000 per occurrence. The Authority accounts for these claims by charges to operating expenses as payments are made.

NOTES TO FINANCIAL STATEMENTS

DECEMBER 31, 1978 AND 1977

(Continued)

(1) Summary of Significant Accounting Policies (Continued)

(f) Unreimbursed Cost of Service

The legislative act under which the Massachusetts Bay Transportation Authority was established provides, among other things, that the Commonwealth of Massachusetts shall reimburse the Authority for the "net cost of service" as defined. Certain of these amounts reimbursed are then assessed to the 79 cities and towns constituting the Authority. The "net cost of service", as defined, includes a charge equal to the payments made on long-term debt during the period, and does not include a charge for depreciation and certain amortization. For financial reporting purposes however, the Authority follows the generally accepted method of depreciating and amortizing the cost of assets over their estimated useful lives.

The cumulative excess of depreciation and amortization charges over payments made on long-term debt is charged to the unreimbursed cost of service account and is recovered in years when payments made on long-term debt exceed depreciation and amortization. During the years ended December 31, 1978 and 1977 depreciation and amortization charges exceeded payments on long-term debt by \$9,604,936 and \$7,667,418 respectively. The excess of depreciation and amortization charges over payments is due primarily to the depreciation charges on construction projects completed and new equipment put into service during those years.

In addition, the "net cost of service" as defined does not include charges for interest expense on the Loans Payable to the Federal Department of Transportation (\$3,178,330 in 1978 and \$3,257,329 in 1977) (Note 11). However, for financial reporting purposes, these amounts have been charged to cost of service, in accordance with generally accepted accounting principles. Interest accrued will be included in "net cost of service" assessable to the cities and towns in the year it is paid.

(g) Grants

The Authority receives capital expansion grants from certain governmental agencies (see Note 8) to be used for various purposes connected with the planning, modernization and expansion of transportation facilities. These grants are deferred until such time as the related facilities are put into service. The credits are then amortized over the estimated useful life of the assets as a reduction of Unreimbursed Cost of Service. As of December 31, 1978, the Authority had incurred costs paid with Construction funds totaling \$44,145,830 which will be reimbursed from capital grant funds. The related grants will be reflected on the books when these funds are received.

(2) Railroad Commuter Subsidies

Under Chapter 161A Section 3(f) of the General Laws, the Authority may enter into agreements with private transportation companies, railroads and other concerns providing for joint or cooperative operation of any mass transportation facility and for operation and use of any mass transportation facility and equipment for the account of the Authority.

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

NOTES TO FINANCIAL STATEMENTS

DECEMBER 31, 1978 AND 1977

(Continued)

(2) Railroad Commuter Subsidies (Continued)

The Authority has five-year operating agreements expiring in March, 1981 with the Boston and Maine Corporation (B & M) to provide commuter rail service north and west of Boston ("North Service") and south and west of Boston ("South Service"). The Authority has agreed to pay the B & M all direct costs of operating the service, plus an equitable share of indirect costs and certain incentive payments.

In the event that the Advisory Board fails to approve the annual budgetary provision for any of this service, these agreements shall terminate subject to certain labor protection obligations and liquidated damages in lieu of incentive payments for passengers carried.

The net operating costs of commuter rail service without depreciation expense amounted to \$31,033,826 in 1978 and \$26,691,776 in 1977. The net cost of commuter rail service after recognition of Section 17 Federal Operating Assistance (see Note 12) and reimbursements for contracted service outside the district amounted to \$25,381,388 in 1978 and \$20,294,128 in 1977. Depreciation expense on commuter rail property amounted to \$1,350,149 in both 1978 and 1977 and is reflected in "Depreciation and amortization" in the Statement of Revenue and Cost of Service.

(3) Relocation of Facilities

In 1967 the Authority sold certain properties and used the proceeds of the sale to purchase replacement facilities. The gain realized on the sale amounting to \$6,706,705 is included in Deferred Credits on the balance sheet net of amortization of \$670,672. In 1975 when replacement facilities were completed and placed in service amortization of the gain was begun over a 40-year period, the estimated useful life of the replacement facility. The amortization of \$167,668 in both 1978 and 1977 is accounted for as a reduction of the unreimbursed cost of service. At December 31, 1978 the remaining balance of the proceeds from the sale was approximately \$270,000 and is included in other special funds.

(4) Pension

The Authority has agreed to provide retirement benefits to employees through a contributory pension plan which, as currently amended, requires the payment by the Authority of an amount equal to 11-5/8% of the total payroll of the employees who are members of the plan. The cost of the plan to the Authority for the years ended December 31, 1978 and 1977 was approximately \$15,064,431 and \$14,147,504 respectively. The cost in both years is funded currently and includes interest on unfunded prior service costs, but does not include amortization of the unfunded prior service costs. The Authority is not legally obligated, under the agreement, to fund the actuarial cost of future benefits to present and retired employees. The most recent actuarial valuation was made as of December 31, 1977, and at that time, unfunded prior service costs approximated \$156,783,292.

The actuarially computed value of vested benefits, based upon the December 31, 1977 actuarial report was \$247,280,844. As of December 31, 1977, the market value of the fund assets was \$159,694,229 and the actuarially computed value of vested benefits exceeded the market value of fund assets by \$87,586,615. The market value of fund assets as of December 31, 1978 was \$180,188,781.

NOTES TO FINANCIAL STATEMENTSDECEMBER 31, 1978 AND 1977

(Continued)

(4) Pension (Continued)

The Authority has also entered into agreements with certain salaried employees to provide supplemental pension benefits after retirement. In order to receive the benefits, the employee must have at least ten years of service and be eligible for retirement under provisions of the contributory pension plan. The annual supplemental benefit paid is equal to 1% of the employee's average annual compensation received during the last five years of service multiplied by the number of years of service, but limited to an amount which, when added to the benefit available under the contributory pension plan, is not greater than 65% of the employee's five year average annual compensation. At December 31, 1978 approximately 755 employees were either receiving supplemental benefits or will be eligible to receive them upon retirement. The cost of the supplemental pension benefits is funded currently, and includes interest on unfunded prior service costs and amortization of the unfunded prior service cost over forty years. The cost to the Authority of the supplemental pension benefits was \$883,130 in 1978 and \$796,159 in 1977. The most recent actuarial valuation was made as of January 1, 1978, and at that time the unfunded prior service cost approximated \$6,845,215, and the actuarially computed value of vested benefits was \$6,056,488.

(5) Debt Guaranty

The legislative act under which the Massachusetts Bay Transportation Authority was established provides among other things, that if at any time any principal or interest is due on any bond or note issued or assumed by the Authority and funds to pay the same are not available, the Commonwealth of Massachusetts shall thereupon pay over to the Authority the amount required to meet such obligations.

(6) Plant and Equipment Improvement Program

The Authority's program for mass transportation within the area constituting the Authority involves total estimated costs of \$1.9 billion. Financing requirements for the program are expected to be met through various sources, including the issuance by the Authority of long-term debt securities. The remaining financing requirements are expected to be met through Federal transit aid, Federal urban renewal funds, interstate transfer funds and relocation cost reimbursements. Currently, the Authority's authorized debt ceiling is \$509,000,000. Of this amount \$120,000,000 may only be issued once, and any bonds maturing or redeemed on or after January 1, 1983 may not be reissued thereby reducing the amount of bonds which may be outstanding at any one time.

Expenditures on the program through December 31, 1978, have been financed through the issuance of \$365,000,000 of Massachusetts Bay Transportation Authority General Transportation System Bonds, and other sources as mentioned elsewhere.

As of December 31, 1978, the Authority had outstanding commitments related to the improvement program amounting to approximately \$280,000,000.

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

NOTES TO FINANCIAL STATEMENTS

DECEMBER 31, 1978 AND 1977

(Continued)

(7) Contract Assistance

The legislative act authorizing the issuance of debt securities currently provides for participation by the Commonwealth of Massachusetts in the payment of annual debt service costs on bonds issued by the Authority as follows: On the \$175,000,000 of bonds issued prior to January 1, 1971, the debt service on \$144,800,000 is eligible for contract assistance at either 90% or 50%, as provided by contract; the annual debt service on \$190,000,000 of bonds issued after January 1, 1971, is eligible for contract assistance at 90%. However, regardless of when issued, contract assistance on debt service will not be extended to over \$377,000,000 at any one time.

In 1977, the Commonwealth enacted legislation which provided the Authority with an additional amount of contract assistance for the cost of service amounting to \$62,732,000. This additional contract assistance is not assessable to the 79 cities and towns constituting the Authority and is applied for assessment purposes as a reduction of all cost items comprising the net cost of service of the Authority. This legislation is pending for 1978 and therefore the Authority has not as yet received additional contract assistance for the cost of service in 1978. If the additional contract assistance is not received, it will increase the amount to be assessed to the 79 cities and towns by \$72,241,000.

In 1973, contract assistance of \$15,051,861 was received by the Authority for funded debt, and in addition \$4,513,946 was paid by the Commonwealth for the Authority as a railroad commuter subsidy (Note 2). These amounts, totaling \$19,565,807 under Chapter 1140 of the Acts of 1973, represent the minimum contract assistance to be paid by the Commonwealth in any subsequent calendar year. In 1978 and 1977 the Authority became eligible for \$24,696,562 and \$21,532,455 respectively. In addition, from July 1, 1976 through June 30, 1977, the Authority received contract assistance under Chapter 283 of the Acts of 1976 amounting to 75% of the net additional cost of providing rail service to certain cities and towns outside the district. Chapter 363A of the Acts of 1977 extended this assistance through June 30, 1978. Chapter 367 of the Acts of 1978 extended this assistance through June 30, 1979, and in addition provides that the proportion of net assessable cost, after Federal assistance, assessed on the outside Cities and Towns shall not exceed that portion paid on March 1, 1978. This additional state assistance under Chapter 367 is limited to \$2,000,000. The assistance under these Chapters amounted to \$1,305,265 in 1978 and \$501,564 in 1977.

(8) Grants

Under the Urban Mass Transportation Act of 1964, the Federal Department of Transportation has approved for the Authority grants for capital expansion aggregating \$1,000,946,397. The Authority has received \$396,776,945 of this amount. These funds have been used by the Authority to purchase new equipment and to modernize and expand mass transportation facilities.

NOTES TO FINANCIAL STATEMENTS

DECEMBER 31, 1978 AND 1977

(Continued)

(8) Grants (Continued)

Under an agreement between the Boston Redevelopment Authority and the Massachusetts Bay Transportation Authority, the BRA has approved grants aggregating \$12,000,000 in connection with the expansion of mass transportation facilities. The Authority has incurred costs totaling \$11,999,479 related to this agreement. Of this amount the Authority has not as yet been reimbursed by the BRA for \$514,196 which is included in accounts receivable.

Federal and BRA amortization credited to the unreimbursed cost of service amounted to \$10,762,497 in 1978 and \$8,569,689 in 1977.

(9) Deferred Charges

Under the original Railroad Contract Assistance Program the Authority incurred costs which totaled \$5,000,000, which are being amortized to cost of service over fifteen years. The amortization amounted to \$350,000 in 1978 and \$325,000 in 1977, and the unamortized balance at December 31, 1978 was \$1,400,000. In addition, in connection with the Authority's acquisition of the Eastern Mass. Street Railway Company in 1968, costs of \$611,362 were not assigned to tangible assets. These costs are being amortized by charges to cost of service over forty years. Amortization in both 1978 and 1977 amounted to \$15,284 and the unamortized balance at December 31, 1978 was \$458,522.

Certain other deferred charges principally relating to the expansion and modernization of the transportation system are being amortized by charges to cost of service over twenty years. Amortization amounted to \$649,602 in 1978 and \$598,196 in 1977, and the unamortized balance at December 31, 1978 was \$10,897,274.

(10) Supplementary Operating Expense Information

Operating expenses captioned below consist of the following:

	<u>1978</u>	<u>1977</u>
Transportation services -		
Salaries and wages	\$76,430,898	\$72,443,622
Taxes, including payroll taxes	4,708,622	4,194,427
Fuel	3,018,054	2,813,845
Other	4,340,036	4,816,835
	<u>\$88,497,610</u>	<u>\$84,268,729</u>
Maintenance -		
Salaries and wages	\$32,767,003	\$31,122,109
Materials and supplies	11,037,088	10,684,767
Taxes, including payroll taxes	2,017,981	1,797,612
	<u>\$45,822,072</u>	<u>\$43,604,488</u>
Electric Power -		
Salaries and wages	\$ 3,453,312	\$ 3,513,426
Power purchased	3,797,531	3,121,151
Fuel	5,446,151	7,199,722
Taxes, including payroll taxes	226,739	201,979
Other	358,977	248,047
	<u>\$13,282,710</u>	<u>\$14,284,325</u>

NOTES TO FINANCIAL STATEMENTS

DECEMBER 31, 1978 AND 1977

(Continued)

(11) Property Held for Expansion

On January 26, 1973, the Authority purchased 145 miles of right of way and related properties in Eastern Massachusetts from the Penn Central Railroad. This purchase was financed with a \$19.5 million (6.875% interest rate) loan from the Federal Department of Transportation. The property acquired is pledged as security for the loan.

On December 27, 1976, the Authority purchased certain assets of the Boston and Maine Corporation (B & M), including 270 miles of right-of-way, track and related properties and 84 Budd Rail Diesel cars. The cost of \$39.5 million was financed with a \$24,172,750 (8% interest rate) loan from the Federal Department of Transportation secured by the assets purchased, a \$12,261,800 Federal Department of Transportation grant, and \$3,065,450 of local funds.

Of the property purchased, \$22,453,650 is not presently in transit use by the Authority and is being held for future expansion.

Both of the Federal Department of Transportation loan agreements provide for the Authority to repay the principal plus accrued interest at the earlier of (a) ten years from date of purchase, (b) the date a grant agreement for actual construction of mass transportation facilities is made, or (c) the date a decision is made not to use the property for mass transportation. The Penn Central agreement also provides that 75% of the principal shall only be payable out of the proceeds from sale of the property, if sold.

Interest totaling \$11,886,331 (\$3,273,562 in 1978 and \$3,331,870 in 1977) has been accrued in the accompanying financial statements at December 31, 1978.

(12) Federal Assistance (Department of Transportation)

Section 5 of the Urban Mass Transportation Act of 1964, as amended by the National Urban Mass Transportation Act of 1974, provided a six year mass transportation assistance program for urbanized areas apportioned on the basis of a statutory formula. Urbanized areas may use Section 5 funds by developing specific capital assistance and/or operating assistance projects under the statutory requirements of the Act, as defined. The Authority has been designated the primary recipient for the Section 5 operating subsidy funds for the Boston Urbanized Area. The Federal Public Transportation Act of 1978 extended the assistance through 1982 and revised the formula for apportioning funds to urbanized areas and limited certain amounts of the apportionment to specific purposes. During 1977, \$16,861,566 was received and in 1978 under the revised formula, \$22,487,422 has been requested and is recorded in Accounts Receivable on the balance sheet.

In August, 1976 Section 17 of the Urban Mass Transportation Act of 1964, as amended, authorized the Urban Mass Transportation Administration (UMTA) to furnish emergency operating assistance for the continuation of certain passenger rail service operated by ConRail as of April 1, 1976 (South Service). The amount of Section 17 subsidy available to the Authority was a percentage of the increased costs of continuing passenger service up to a maximum determined by standards set by the Rail Services Planning Office of the Interstate Commerce Commission. The Federal Public Transportation Act of 1978 terminated this Section 17 assistance as of September 30, 1978 and replaced it with operating assistance under Section 5 designated for commuter rail service. Under Section 17, the Authority has recorded \$5,338,500 for 1977 operations, and \$4,140,976 for 1978 operations. The Authority expects to be eligible for approximately \$7 million for commuter rail operations under Section 5 to be available in 1979.

NOTES TO FINANCIAL STATEMENTS

DECEMBER 31, 1978 AND 1977

(Continued)

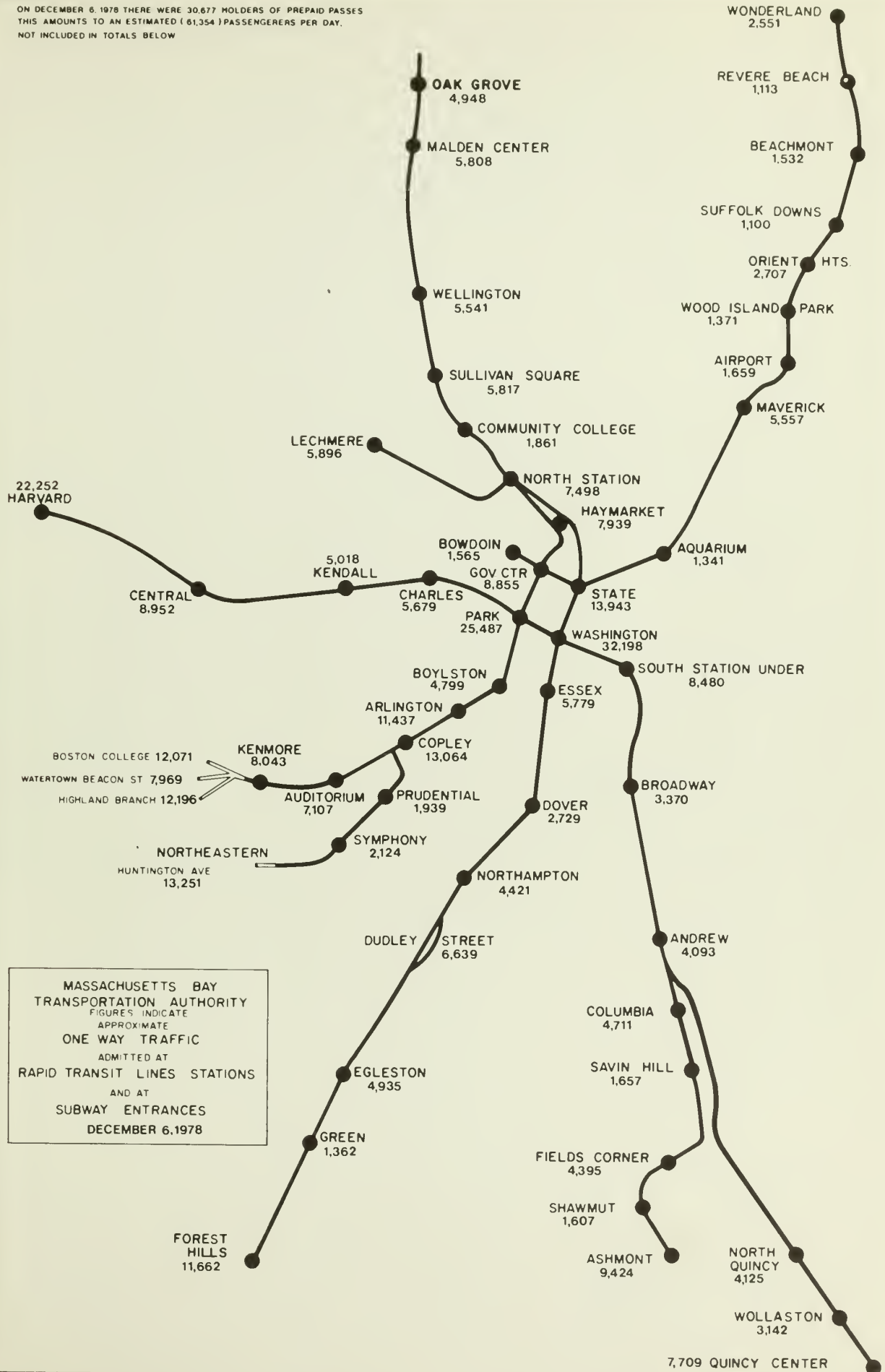
(13) Current Expenses in Excess of Budget

During 1978, the Authority exceeded its current expense budget as formally approved by its Advisory Board by approximately \$5,662,000. On February 14, 1979 the Board of Directors of the Authority passed a vote authorizing the submission of a supplement to the 1978 budget to the Advisory Board seeking formal approval of the current expenses incurred in excess of the approved budget. To the extent such current expenses have not been or are not approved by the Advisory Board, it is possible that such expenses cannot be included in determining the 1978 assessable net cost of service of the Authority.

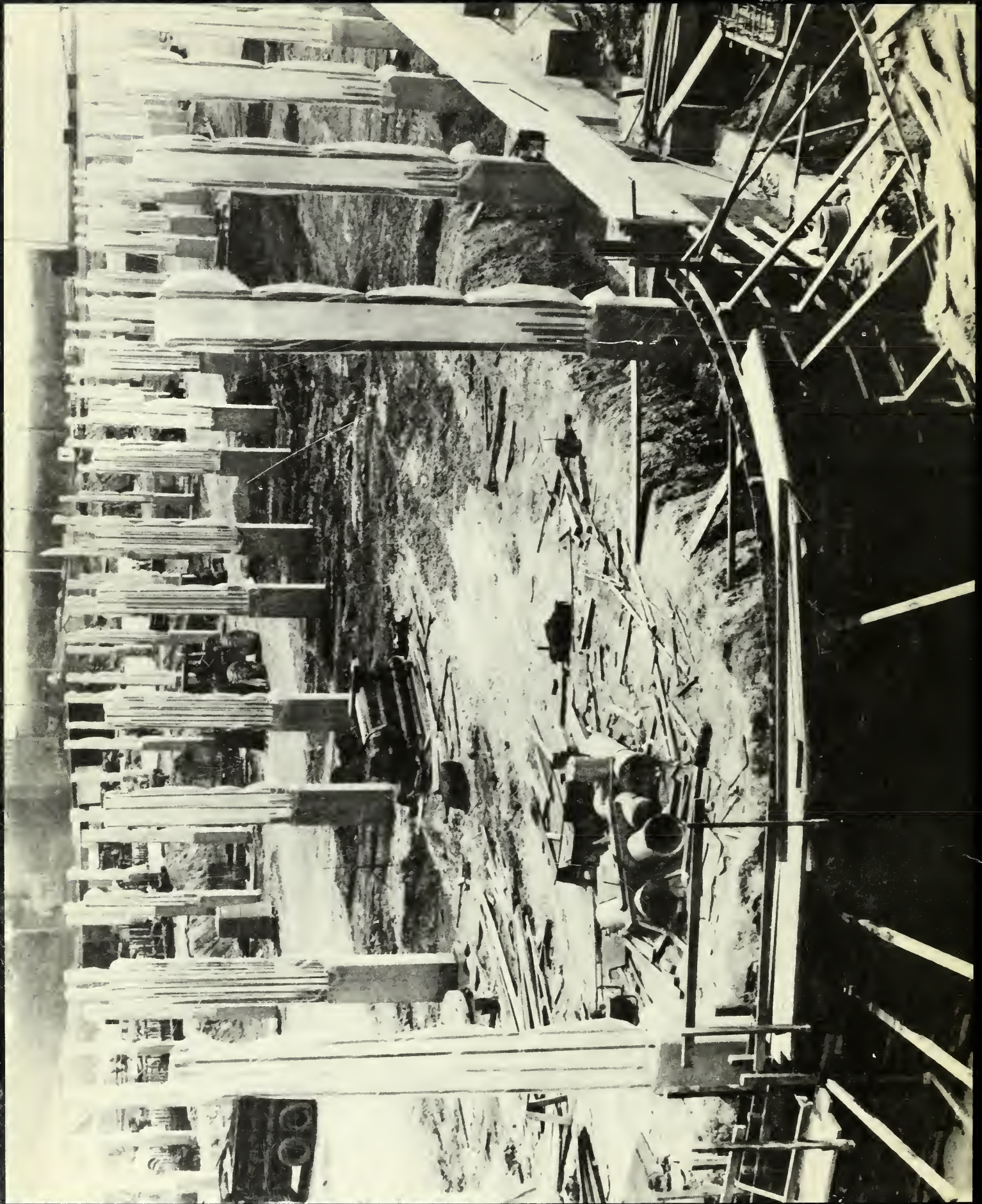
These expenses are included in the determination of the cost of service in excess of revenue for the year ended December 31, 1978 and in Accounts Receivable - Commonwealth of Massachusetts as of December 31, 1978 in the accompanying financial statements.

NOTE:

ON DECEMBER 6, 1978 THERE WERE 30,677 HOLDERS OF PREPAID PASSES
 THIS AMOUNTS TO AN ESTIMATED (61,354) PASSENGERS PER DAY.
 NOT INCLUDED IN TOTALS BELOW



MASSACHUSETTS BAY
 TRANSPORTATION AUTHORITY
 FIGURES INDICATE
 APPROXIMATE
 ONE WAY TRAFFIC
 ADMITTED AT
 RAPID TRANSIT LINES STATIONS
 AND AT
 SUBWAY ENTRANCES
 DECEMBER 6, 1978



MASS. TC 40.1: 974-80



MASSACHUSETTS
BAY
TRANSPORTATION
AUTHORITY

DOCUMENT
COLLECTION

PROGRESS SETS THE STAGE FOR THE 1980's



GOVERNMENT DOCUMENTS
COLLECTION

NOV 23 1981

University of Massachusetts
Department of

**1979 & 1980 — PRODUCTIVE YEARS
for the**

**MASSACHUSETTS BAY TRANSPORTATION
AUTHORITY CONSTRUCTION PROGRAM**

CONTENTS

- 2 General Manager's Letter
- 3 Southwest Corridor
- 5 Red Line Northwest
- 7 Red Line — South
- 8 South Station Transportation
- 9 Station Modernization
- 10 Plant Improvements

COVER

Top, left to right: Braintree Station on the Red Line's South Shore Extension; a concreted deep-bore tunnel for the Red Line Northwest Extension Project; preparatory work for the Southwest Corridor Relocation construction project.

Bottom, left to right: New bus garage and maintenance facility in Charlestown; Quincy Adams Station Construction; improvement work for the Green Line along Huntington Avenue.

Massachusetts Bay Transportation Authority Principal Officers

Edward J. King, Governor
James F. Carlin, Acting Chairman
James F. O'Leary, General Manager

Paul E. Means, Director
Richard L. Taylor, Director
John J. McCarthy, Director
Walter J. Ryan, Director
John F. Dator, Director
Henry J. Piechota, Director

Richard J. Dempsey
Director of Construction

PRODUCTIVITY

Highlights of 1979-1980

	<u>1979</u>	<u>1980</u>
Construction Contracts Awarded	29	33
Construction Contract Award Value	\$177,298,591	\$231,141,786
Professional Service Contracts Awarded	98	155
Professional Service Contract Value	\$12,832,703	\$22,824,441
Federal Aid Grants Received	16	28
Federal Aid Grant Value	\$286,830,908	\$531,213,375



**MASSACHUSETTS
BAY
TRANSPORTATION
AUTHORITY**



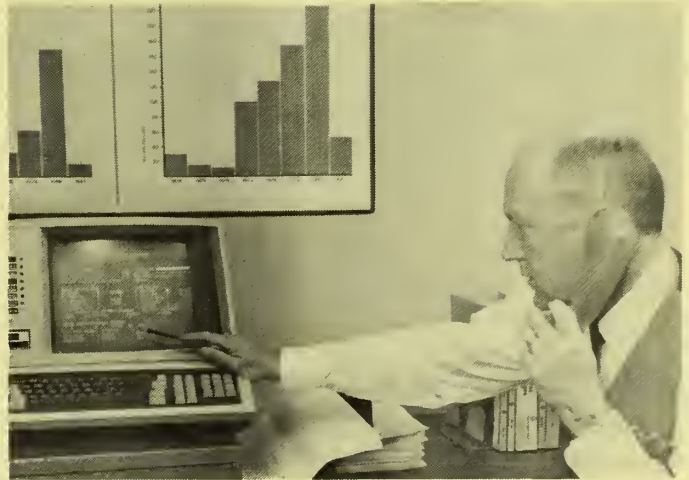
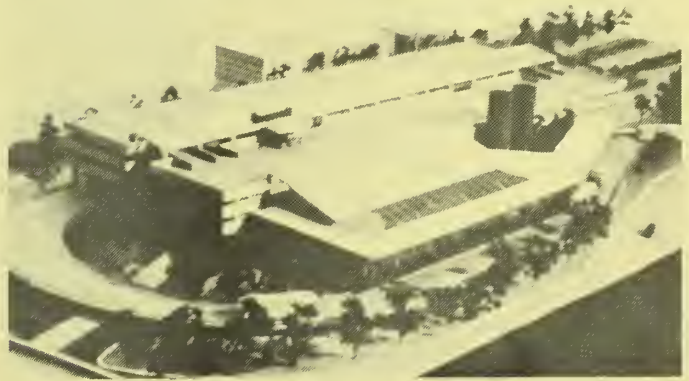
In 1979 and 1980, the MBTA's Construction Directorate experienced the largest growth in its history. The Authority received 44 grant awards from the U.S. Department of Transportation's Urban Mass Transportation Administration, totalling \$817.8 million for the modernization and expansion of the system. The Authority awarded \$408 million in construction contracts during this two-year period. It is anticipated that during 1981 nearly \$275 million in additional construction contracts will be awarded.

The magnitude of this capital investment program is expected to have a major beneficial impact on the economy of the Commonwealth. The MBTA construction program translates into nearly 7,000 construction jobs, multiplying to produce approximately 60,000 jobs throughout the region's economy from firms providing manufactured materials and services to the projects. For example, on the Red Line Extension Project alone, fifty percent (50%) of the materials are expected to be manufactured locally.

I'm proud to report the many successes and accomplishments of 1979 and 1980 and look forward to the new decade as a productive era for the Construction Program of the MBTA.

Sincerely,

James F. O'Leary
General Manager



LOOKING TOWARDS THE FUTURE

TOP TO BOTTOM:

Station models: new Alewife Station Garage Complex of the Red Line Northwest Extension; new Forest Hills Station of the Southwest Corridor Relocation Project. Director of Construction, Richard J. Dempsey checks his terminal for the status of a contract.

SOUTHWEST CORRIDOR — INVESTMENT T

The development and relocation of the Southwest Corridor from Forest Hills to the South Cove Station in Chinatown represents the largest single construction project to be undertaken in the history of the Commonwealth.

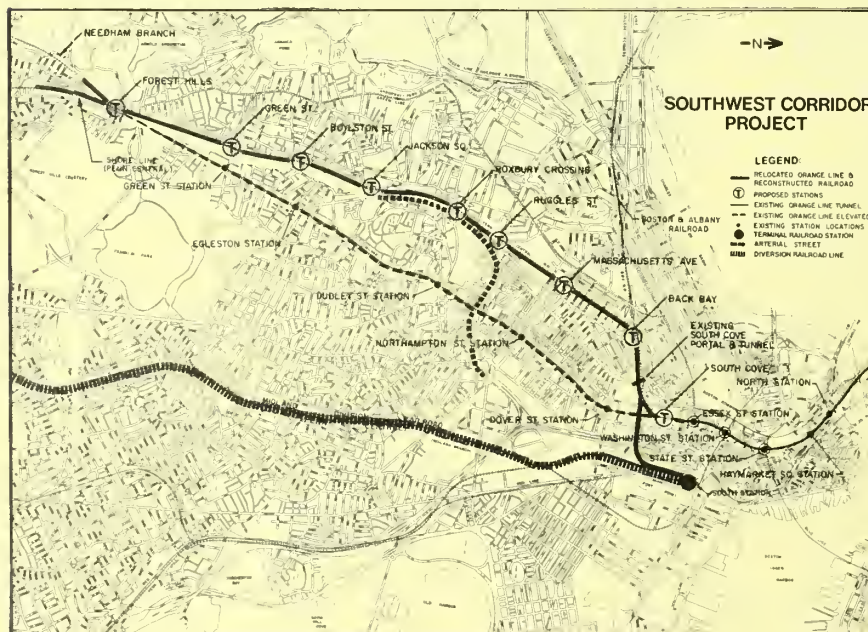
This major relocation project, when completed in 1986, will effectively link one quarter of the city's population (seven neighborhoods) with downtown Boston.

The Southwest Corridor is almost a one billion (\$1,000,000,000) dollar investment in the future. Current estimates of project costs now reach \$963 million.

To date, a total of approximately \$136 million in construction monies have been committed or contracted out. Three contracts, worth \$154 million, are anticipated for commitment in 1981. They will consist of various line construction contracts as well as the Forest Hills Station Complex.



Southwest Corridor Right-of-way looking towards downtown Boston.



The new 4.7 mile line will combine three transportation modes, rapid transit, local commuter rail, and intercity rail formerly operated on two physically separate rights-of-way, to the alignment previously occupied by the railroad services. All freight service on this ROW was transferred to a separate freight line in an adjacent sector of the city prior to initiation of the project.

RELOCATION PROJECT THE FUTURE —



Governor King begins transit construction in Roxbury and Jamaica Plain; December 4, 1979.

Construction activity within the Corridor will provide work for as many as eighteen (18,000) thousand people over a five (5) year period. Additionally, the physical rehabilitation of the area will create more than five (5,000) thousand permanent new jobs.

The project also entails a wide range of other programs that

will stimulate economic harmony within the surrounding affected communities. Specific attention has been given to providing an Educational Training Program which provides architectural and engineering experience to local young adults. To date, 143 individuals have participated in this program.



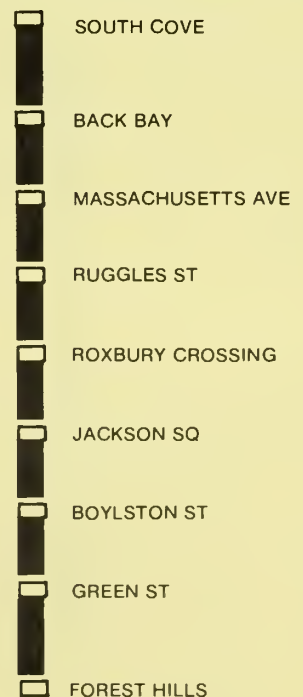
The Southwest Corridor Relocation Project consists of 35 contracts including:

- 9 site preparation and demolition contracts
- 7 line construction contracts
- 10 station and garage contracts
- 9 systemwide contracts



Back Bay Station; Orange Line, commuter rail, Amtrak.

SOUTHWEST CORRIDOR PROJECT



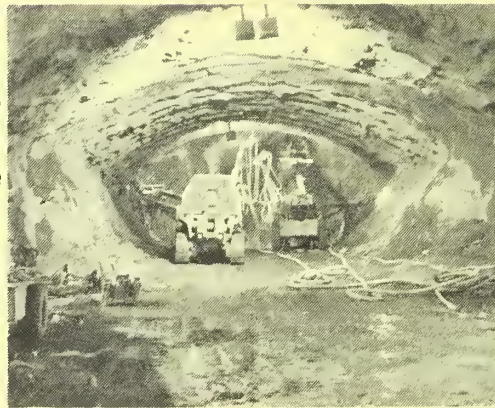
THE REDLINE NORTHWEST

Construction activity on the 3.2 mile Red Line Extension Project is currently moving ahead at full pace.

The Extension project, which began construction in 1978, is expected to be operational by mid 1984. Four new stations, twin deep-bore tunnels, as well as cut and cover tunnels, utility relocations and one of the most extensive slurry wall construction efforts nationwide, comprise the major portion of the program.

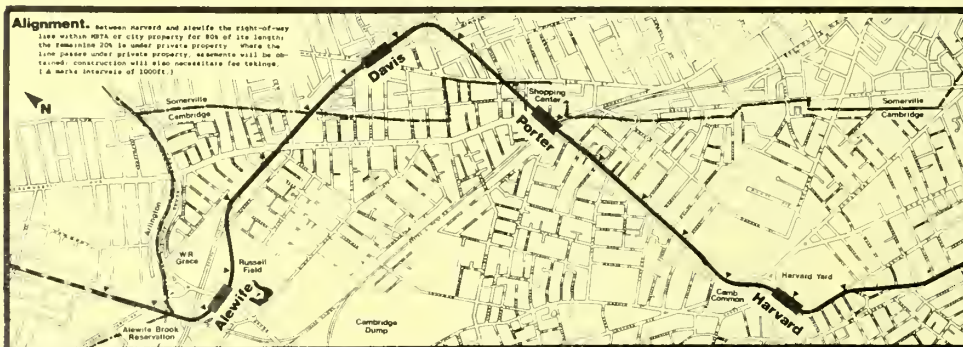
The current value of this project at completion will be nearly \$590 million. To date, over \$361 million in construction funds have been contracted out or committed by the Red Line Northwest Project.

Most notably, the Alewife Station Garage Complex Harvard Square Station, the Harvard to Porter Tunnel and Porter Square Station comprise more than \$241 million.



Governor Edward J. King recently announced the receipt of an \$85 million federal construction grant for further utilization on the Red Line Extension Project. The award of that particular grant will allow most of the remaining construction contracts to proceed. Approval of an additional \$84 million by the Urban Mass Transportation Administration will complete the federal government's participation in the project.

Portions of the effort have already been completed. Specifically, the Harvard/Brattle Temporary Station was dedicated on March 24, 1979. This station serves as a temporary terminus of the Red

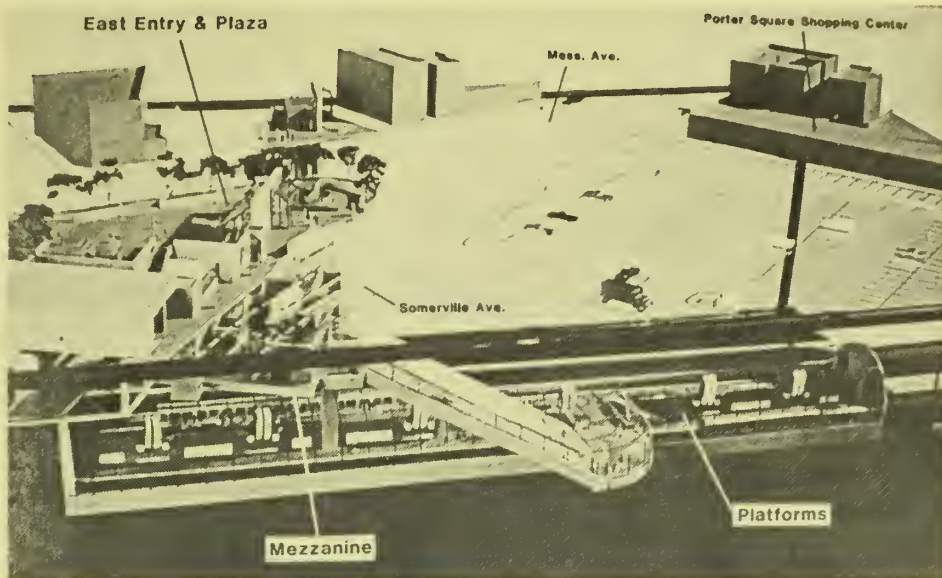


TENSION TUNNELS NORTH



Line Northwest while the New Harvard Square Station is under construction. A second temporary station, Harvard Station, Harvard/Holyoke, opened on January 31, 1981. This will also serve previous Harvard Square Station passengers. Both of these temporary stations will enable Red Line service to proceed normally to and from Harvard Square during construction of the new permanent Harvard Square Station.

It should be pointed out that the extension is being constructed within two of the most densely populated cities in the Northeast: Somerville and Cambridge. This close proximity to residential, commercial and traffic activity presents a unique and



challenging construction task. Both the engineering, community and public relation efforts are truly phenomenal.

The Red Line Extension is expected to have a positive rippling effect on the surrounding environment. Some of the benefits resulting will be: the diversion of 9,000 automobiles from local roads, lower transportation costs into the city of Boston, increased public transit usage, increased use of adjacent commercial areas, better air quality as well as other direct economic benefits.

The generation of 2,000 construction jobs and thousands of related jobs will be realized over the project duration. Furthermore, approximately 50% of the anticipated materials purchased for the project (\$60 million) will be manufactured locally.

In summary, construction of the Red Line Extension project is expected to produce unlimited positive results for all those involved.

The Red Line Northwest Extension Project consists of 28 construction contracts including:

- 10 site preparation
- 6 station buildings
- 5 tunnel
- 7 systemwide

REDLINE NORTHWEST EXTENSION PROJECT



REDLINE — SOUTH BRAINTREE STATION OPENS

The Braintree Station/Garage Complex opened for revenue service in March of 1980.

The project, constructed at a cost of more than \$53 million, included a new transit right-of-way, placement of new track, and the installation of signal and train controls, traction power, two substations, a main station, and a parking garage complex. The garage, which has a capacity for approximately twelve hundred (1200) automobiles, was reported filled to capacity within six

months of the opening day in March, 1980.

Additionally, ridership levels reached 3,500 passengers per day with peak usage now hitting the 4,500 passenger level per day. The station, part of an overall 3.2 mile transit extension from Quincy Center to South Braintree, consisted of six major contracts, the largest single contract being the construction of the \$10 million station and garage complex.



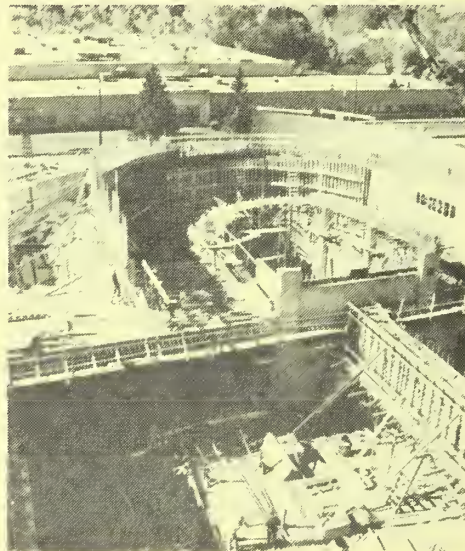
QUINCY ADAMS STATION — THE FINAL LINK —

The Quincy Adams Station, under construction since January 16, 1979, is the final link in the 3.2 mile extension project from Quincy Center to South Braintree.

When completed in the Spring of 1981, it will consist of an 1,800 automobile capacity garage and station complex.

The overall project is being constructed within the confines of two (2) major contracts; a twenty-two (\$22,000,000) million contract for the garage and station and a \$3.4 million access ramps contract to be executed in conjunction with the Massachusetts Department of Public Works.

Further, the design and land acquisition contracts are in the



area of \$2.5 million. Several other contracts will help complete the project. These contracts will bring the Quincy Adams Station project value to nearly \$27 million.

The garage and ramp, in

addition to providing extensive automobile parking and drop off facilities, will also service bus and taxi operations as well as bicycles and pedestrians.

The completion of this station will add a major suburban transportation terminal to the system which integrates modes by means of individual circulation paths, culminating in a single collection point leading to the station platform.





SOUTH STATION TO BE MULTI-MODAL TRANSPORTATION CENTER

An extensive project aimed at converting the South Station Railroad Terminal into a major multi-modal transportation complex is planned, with construction expected to begin in June of 1981. The total cost is estimated at \$90 million.

The MBTA is working in conjunction with the Urban Mass Transportation Administration, the Federal Railroad Administration and the Commonwealth of Massachusetts' Executive Office of Transportation and Construction to rehabilitate the railroad station and provide for a direct connection within the facility to the Red Line rapid transit system; a new bus terminal for commuter and intercity bus carriers; and a new trainroom, track and platforms

for AMTRAK and MBTA commuter rail. In addition to the transportation improvements, the project will result in the creation of new office and retail space. Station renovation and construction of a new west wing addition to the existing terminal building is expected to result in the MBTA's making available approximately 21,000 square feet of office space and 14,000 square feet of retail space, bringing the total retail and office space to nearly 120,000 square feet.

An additional 250,000 square feet of development space is expected to be available as a result of an air rights development effort being planned by the MBTA in conjunction with the Boston Redevelopment

Authority. The BRA has preliminarily identified such development uses as a new office building, a 23-story hotel and a new metropolitan trade center, as a possible package for this air rights development site.

With this increased utilization of South Station, the MBTA projects that approximately 35,000 persons will use the new transportation facilities daily. The added advantage of offering new office and retail space is expected to provide a significant economic boost to the City of Boston.

Construction is expected to be completed by the end of 1984 and result in a transportation and development center of national significance.

UPGRADING THE EXISTING TO COMPLEMENT THE NEW

With the Construction of the MBTA's rapid transit extensions, the Authority is aware of the importance of modernizing its existing facilities, many of which were designed and built in the early 1900's. This effort, known as Systemwide Improvements, consists of five major elements; (1) Station Modernization (2) Maintenance Facilities - Upgrade (3) Power Improvements (4) Plant Improvements and (5) Commuter Rail Improvements. During 1979 and 1980, the MBTA received \$169.7 million in grant awards for Systemwide Improvements from the Urban Mass Transportation Administration and has awarded construction contracts totalling \$63.0 million in support of these endeavors.



Washington Street Station following Modernization Efforts.

\$91 MILLION TARGETED FOR STATION MODERNIZATION

Engineering and design is underway for the modernization of 15 rapid transit stations — a project estimated to cost \$91 million. Stations on two of the MBTA's rapid transit lines are slated for improvement in 1981, including lengthening station platforms, installation of new escalators and elevators for the handicapped, new signage and lighting, and total renovations to various station interiors.

1170 09

On the Red Line, improvements are planned for stations at Central Square, Kendall Square, Charles Street, Park Street, Washington Street, South Station, Broadway, Andrew, Savin Hill, Fields Corner and Ashmont.

On the Orange Line, Essex, Washington and State Street Stations will undergo improvements while Suffolk Downs is slated for reconstruction and

improvement on the Blue Line.

Construction is expected to start in Spring of 1981 at two locations.



Aquarium Station

NUMEROUS IMPROVEMENT PROJECTS UNDERWAY

The Plant Improvements Program aimed at improving a wide range of structures, buildings and equipment throughout the system is underway and substantial portions will be completed during 1981.

Estimated at a total cost of more than \$300 million, the program includes rehabilitation of tunnel and bridge structures; construction of subway ventilation shafts; installation of new signal, communications and safety equipment, bus washers and hoists; and the purchase of new non-revenue vehicles.

A major aspect of this project is the rehabilitation of the Green Line rights-of-way on Commonwealth Avenue and Huntington Avenue. With Commonwealth Avenue now complete, work remaining at Huntington Avenue includes the rebuilding of trackbeds and power systems and is expected to be completed in mid 1981.

MAINTENANCE FACILITIES UPGRADED

A \$153 million upgrading of facilities required for the maintenance of MBTA vehicles was highlighted by the completion of two projects and the initiation of two others during 1979 and 1980.

Construction was completed on a new LRV maintenance facility at the Lake Street Terminal near Boston College on the Green Line. This new \$1.2 million complex will enable a more expedient maintenance procedure for LRV's, due to a drastic cut in travel



time needed to reach this new centrally located facility.

Construction of a new \$11 million bus maintenance and repair facility at the Charlestown Maintenance complex was completed and opened in September of 1979. This \$11 million complex, which serves buses operating to communities in the area north of Boston, includes new repair and washing equipment, as well indoor storage for 200 buses.

Construction also began on a new Reservoir Maintenance Facility and Storage Yard near Cleveland Circle. Estimated cost of this project is \$16 million. Construction is expected to be completed by early 1984.

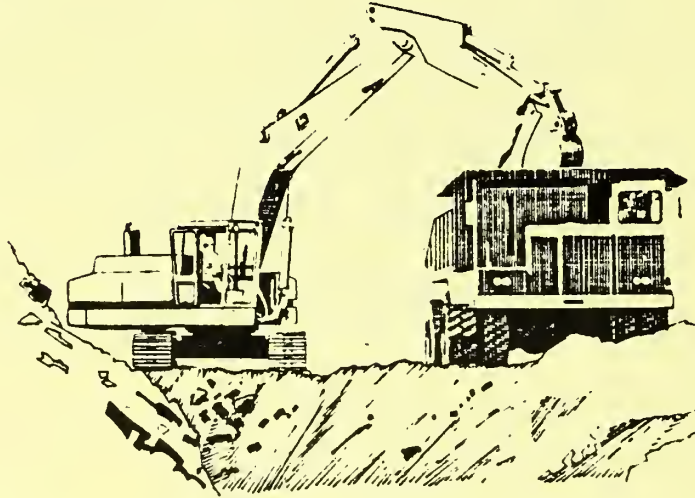
In addition, engineering and design is underway for the modernization of the Everett Maintenance Facilities. Construction for this \$18 million project is slated to begin in 1981.

COMMUTER RAIL IMPROVEMENTS

The three hundred nineteen (319) mile commuter rail system is the focus of a \$130 million improvement project that will enable the MBTA to offer better service to an estimated 35,000 commuter rail passengers.

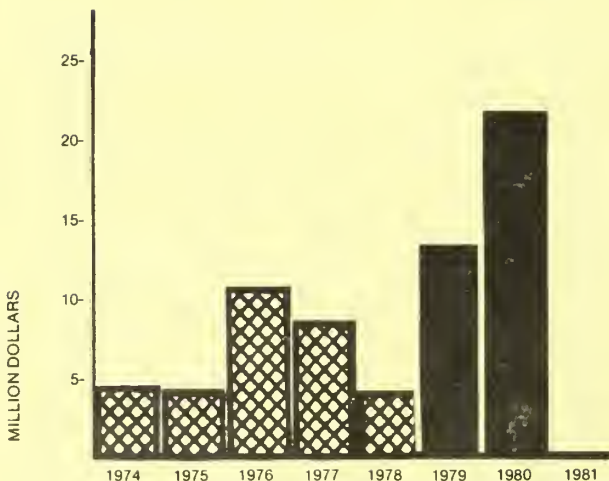
The systemwide project includes the upgrading of trackbeds and tracks, signals and structures. Among sections already improved are the: Ipswich Branch, for which trackbeds were improved, at a cost of \$1.8 million; the Fitchburg Main Line and Gloucester Branch, for which tracks and signals are being rehabilitated, at a combined cost of \$11.6 million; and the Boston and Albany Line, which was upgraded at a cost of \$3.5 million. Additional improvements are planned for other lines during the early 1980's.

THE CONSTRUCTION DIRECTORATE IN REVIEW 1979-1980

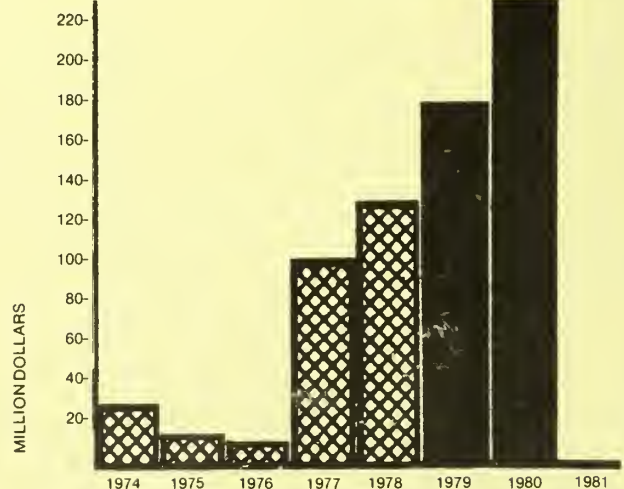


CONSTRUCTION DIRECTORATE PRODUCTIVITY

PROFESSIONAL SERVICE CONTRACTS AWARDED
1974-1981



CONSTRUCTION CONTRACTS AWARDED
1974-1981



ACME
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